reference guide

hp StorageWorks fabric OS version 3.1.x/4.1.x

Product Version: 3.1.x and 4.1.x

Third Edition (June 2003)

Part Number: AA–RS24C–TE

This reference guide provides a detailed description of the Fabric OS commands. Although this guide is primarily about 4.1.x, it also covers 3.1.x that runs on the StorageWorks SAN Switch 2/16, 2/16 power pak, 2/8-EL, and 2/8 power pack switches.

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Fabric OS Version 3.1.x/4.1.x Reference Guide
Third Edition (June 2003)
Part Number: AA–RS24C–TE

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about this guide

This reference guide provides information to help you:

- Understand and use Fabric OS commands
- Manage a switch or fabric
- Contact technical support for additional assistance

"About this Guide" topics include:

- Overview, page 16
- Conventions, page 17
- Getting Help, page 19

Overview

This section covers the following topics:

- Intended Audience
- Related Documentation

Intended Audience

This book is intended for use by administrators who are experienced with the following:

- StorageWorks Fibre Channel SAN switches
- Fabric Operating System V3.1.x or later

Related Documentation

For a list of related documents included with this product, see the Related Documents section of the Release Notes that came with your switch.

For the latest information, documentation, and firmware releases, please visit the following StorageWorks website: http://www.hp.com/country/us/eng/prodserv/storage.html

For information about Fibre Channel standards, visit the Fibre Channel Association website, located at: http://www.fibrechannel.org.

Conventions

Conventions consist of the following:

- Document Conventions
- Text Symbols

Document Conventions

The document conventions included in Table 1 apply in most cases.

Table 1: Document Conventions

Element	Convention
Cross-reference links	Blue text: Figure 1
Key and field names, menu items, buttons, and dialog box titles	**Bold**
File names, application names, and text emphasis	*Italics*
User input, command and directory names, and system responses (output and messages)	`Monospace font` `COMMAND NAMES` are uppercase monospace font unless they are case-sensitive
Variables	*`<monospace, italic font>`*
Website addresses	Blue, underlined sans serif font text: http://www.hp.com

Text Symbols

The following symbols may be found in the text of this guide. They have the following meanings.

WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.

Caution: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

Note: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Getting Help

If you still have a question after reading this guide, contact an HP authorized service provider or access our website: http://www.hp.com.

HP Technical Support

Telephone numbers for worldwide technical support are listed on the following HP website: http://www.hp.com/support/. From this website, select the country of origin.

Note: For continuous quality improvement, calls may be recorded or monitored.

Be sure to have the following information available before calling:

- Firmware version running on the switch
- A printed output of the `switchshow` command from the problem switch.
- A configuration diagram showing hardware interconnections.
- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

HP Storage Website

The HP website has the latest information on this product, as well as the latest drivers. Access storage at: http://www.hp.com/country/us/eng/prodserv/storage.html. From this website, select the appropriate product or solution.

HP Authorized Reseller

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868
- Elsewhere, see the HP website for locations and telephone numbers: http://www.hp.com.

Fabric OS Commands

1

This chapter lists the Fabric OS commands. It also shows their syntax and operands, and provides examples of their usage.

agtcfgDefault

Reset the SNMP agent configuration to default values.

Synopsis

```
agtcfgDefault
```

Availability

AdminAdmin

Release

V3.1.x and V4.1.x

Description

Use this command to reset the configuration of the SNMP agent to default values.

Note: In the StorageWorks Core switch, there is one SNMP agent per logical switch. This command is specific to the logical switch you are logged into.

The following values are reset to default:

`sysDescr`	The system description. The default value is `Fibre Channel Switch`.
`sysLocation`	The location of the system. The default value is `End User Premise`.
`sysContact`	The contact information for the system. The default value is `Field Support`.

swEventTrapLevel	The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, swEventTrap, is sent to configured trap recipients. By default, this value is set at 0, implying that no swEventTrap is sent. Possible values are: 0 - none 1 - critical 2 - error 3 - warning 4 - informational 5 - debug
authTraps	When enabled, the authentication trap, authenticationFailure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).

There are six communities and respective trap recipients supported by the agent. The first three communities are for read-write access (rw) and the last three are for read-only access (ro). Note that the factory default value for the trap recipient of each community is “0.0.0.0.” The factory default values for the community strings are:

- Community 1: Secret Code
- Community 2: OrigEquipMfr
- Community 3: private
- Community 4: public
- Community 5: common
- Community 6: FibreChannel

Note: In order for an SNMP Management Station to receive a trap generated by the agent in the switch, the administrator must configure a trap recipient value to correspond to the IP address of the Management Station.

In addition, for V4.1.x, the trap recipient must be able to pass the Access Control List (ACL) check.

There are six Access Control Lists (ACLs) to restrict SNMP get/set/trap operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing non-zero IP octets. For example, an ACL of “192.168.64.x” enables access for any hosts that start with the specified octets. The connecting host is enabled as “192.168.64.xx,” where *xx* is any number from 0 to99. All ACL entries also have a flag to set each host-subnet-area to be read-write or read-only. The highest privilege matched out of six entries is given to the access. An ACL check is turned off when all six entries contain “0.0.0.0.”

Note: When secure mode is enabled, the Access Control List feature is incorporated into the WSNMP (WinSNMP) and Reliable SNMP (RSNMP) security policies. Community strings can be changed on the primary FCS switch only and will propagate changes across the fabric. See “Security Commands” on page 941.

Operands

None.

Example

To set the SNMP agent configuration parameters to default values, and verify they were set:

```
switch:admin> agtcfgDefault
*****
This command will reset the agent's configuration back to factory default
*****
Current SNMP Agent Configuration
Customizable MIB-II system variables:
          sysDescr = Fibre Channel Switch.
       sysLocation = End User Premise
        sysContact = sweng
  sweventTrapLevel = 0
         authTraps = 1
(continued on next page)
```

```
SNMPv1 community and trap recipient configuration:
  Community 1: Secret C0de (rw)
    Trap recipient: 192.168.15.41
  Community 2: OrigEquipMfr (rw)
    No trap recipient configured yet
  Community 3: private (rw)
    No trap recipient configured yet
  Community 4: public (ro)
    No trap recipient configured yet
  Community 5: common (ro)
    No trap recipient configured yet
  Community 6: FibreChannel (ro)
    No trap recipient configured yet

SNMP access list configuration:
Entry 0:  Access host subnet area 192.168.64.x (rw)]
Entry 1:  No access host configured yet
Entry 2:  No access host configured yet
Entry 3:  No access host configured yet
Entry 4:  No access host configured yet
Entry 5:  No access host configured yet
SNMPv1 community and trap recipient configuration:
Community 1: Secret Code (rw)
No trap recipient configured yet
Community 2: OrigEquipMfr (rw)
No trap recipient configured yet
Community 3: private (rw)
No trap recipient configured yet
Community 4: public (ro)
No trap recipient configured yet
Community 5: common (ro)
No trap recipient configured yet
Community 6: FibreChannel (ro)
No trap recipient configured yet

SNMP access list configuration:
Entry 0:  No access host configured yet
Entry 1:  No access host configured yet
Entry 2:  No access host configured yet
Entry 3:  No access host configured yet
Entry 4:  No access host configured yet
Entry 5:  No access host configured yet
switch:admin>
```

See Also

agtcfgSet

agtcfgShow

agtcfgSet

Modify the SNMP agent configuration.

Synopsis

```
agtcfgSet
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to modify the configuration of the SNMP agent in the switch.

Note: In the StorageWorks Core switch, there is one SNMP agent per logical switch. This command is specific to the logical switch you are logged into.

Set the values for the following items:

sysDescr	The system description. The default value is Fibre Channel Switch.
sysLocation	The location of the system. The default value is End User Premise.
sysContact	The contact information for the system. The default value is Field Support.

swEventTrapLevel	The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, swEventTrap, is sent to configured trap recipients. By default, this value is set at 0, implying that no swEventTrap is sent. Possible values are: 0 - none 1 - critical 2 - error 3 - warning 4 - informational 5 - debug
authTraps	When enabled, the authentication trap, authenticationFailure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).

There are six communities and respective trap recipients supported by the agent. The first three communities are for read-write access (rw) and the last three are for read-only access (ro). Note that the factory default value for the trap recipient of each community is “0.0.0.0.” The factory default values for the community strings are:

- Community 1: Secret Code
- Community 2: OrigEquipMfr
- Community 3: private
- Community 4: public
- Community 5: common
- Community 6: FibreChannel

Note that in order for an SNMP Management Station to receive a trap generated by the agent, the administrator must configure a trap recipient value to correspond to the IP address of the Management Station. In addition, for V4.1.x, the trap recipient must be able to pass the Access Control List (ACL) check.

There are six ACLs to restrict SNMP get/set operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing non-zero IP octets. For example, an ACL of “192.168.64.x” enables access for any hosts that start with the specified octets. The connecting host is enabled as “192.168.64.xx.” All

ACL entries also have a flag to set each host-subnet-area to be read-write or read-only. Highest privilege matched out of six entries is given to the access. An ACL check is turned off when all six entries contain “0.0.0.0.”

Note: When secure mode is enabled, the Access Control List feature is incorporated into the WSNMP and RSNMP security policies. Community strings can be changed on the primary FCS switch only and will propagate changes across the fabric. See “Security Commands” on page 941.

Operands

None.

Example

To modify the SNMP configuration values in V3.1.x:

```
switch:admin> agtcfgSet

Customizing MIB-II system variables ...

At each prompt, do one of the following:
  o <Return> to accept current value,
  o enter the appropriate new value,
  o <Control-D> to skip the rest of configuration, or
  o <Control-C> to cancel any change.

To correct any input mistake:
<Backspace> erases the previous character,
<Control-U> erases the whole line,
sysDescr: [FC Switch]
sysLocation: [End User Premise]
sysContact: [Field Support.]
swEventTrapLevel: (0..5) [3]
authTrapsEnabled (true, t, false, f): [true]

SNMP community and trap recipient configuration:
Community (rw): [Secret C0de]
Trap Recipient's IP address in dot notation: [192.168.1.51]
Community (rw): [OrigEquipMfr]
Trap Recipient's IP address in dot notation: [192.168.1.26]
Community (rw): [private]
Trap Recipient's IP address in dot notation: [0.0.0.0] 192.168.64.88
Community (ro): [public]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [common]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [FibreChannel]
Trap Recipient's IP address in dot notation: [0.0.0.0]

SNMP access list configuration:
Access host subnet area in dot notation: [0.0.0.0] 192.168.64.x
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Committing configuration...done.
switch:admin>
```

To modify the SNMP configuration values in V4.1.x:

```
switch:admin> agtcfgSet

Customizing MIB-II system variables ...

At each prompt, do one of the following:
  o <Return> to accept current value,
  o enter the appropriate new value,
  o <Control-D> to skip the rest of configuration, or
  o <Control-C> to cancel any change.

To correct any input mistake:
<Backspace> erases the previous character,
<Control-U> erases the whole line,
sysDescr: [FC Switch]
sysLocation: [End User Premise]
sysContact: [Field Support.]
swEventTrapLevel: (0..5) [3]
authTrapsEnabled (true, t, false, f): [true]

SNMP community and trap recipient configuration:
Community (rw): [Secret C0de]
Trap Recipient's IP address in dot notation: [192.168.1.51]
Community (rw): [OrigEquipMfr]
Trap Recipient's IP address in dot notation: [192.168.1.26]
Community (rw): [private]
Trap Recipient's IP address in dot notation: [0.0.0.0] 192.168.64.88
Community (ro): [public]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [common]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [FibreChannel]
Trap Recipient's IP address in dot notation: [0.0.0.0]

SNMP access list configuration:
Access host subnet area in dot notation: [0.0.0.0] 192.168.64.0
Read/Write? (true, t, false, f): [true] t
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
sysDescr = Fibre Channel Switch.
sysLocation = End User Premise
sysContact = Field Support.
swEventTrapLevel = 0
(continued on the next page)
```

```
authTraps = 0 (OFF)

SNMPv1 community and trap recipient configuration:
Community 1: Secret C0de (rw)
Trap recipient: 192.168.15.41
Community 2: OrigEquipMfr (rw)
No trap recipient configured yet
Community 3: private (rw)
No trap recipient configured yet
Community 4: public (ro)
No trap recipient configured yet
Community 5: common (ro)
No trap recipient configured yet
Community 6: FibreChannel (ro)
No trap recipient configured yet

SNMP access list configuration:
Entry 0:  Access host subnet area 192.168.64.0 (rw)]
Entry 1:  No access host configured yet
Entry 2:  No access host configured yet
Entry 3:  No access host configured yet
Entry 4:  No access host configured yet
Entry 5:  No access host configured yet
Committing configuration...done.
switch:admin>
```

See Also

agtcfgDefault

agtcfgShow

agtcfgShow

Displays the SNMP agent configuration.

Synopsis

```
agtcfgShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the configuration of the SNMP agent in the switch.

Note: In the StorageWorks Core switch, there is one SNMP agent per logical switch. This command is specific to the logical switch you are logged into.

The following information is displayed:

sysDescr	The system description. The default value is Fibre Channel Switch.
sysLocation	The location of the system. The default value is End User Premise.
sysContact	The contact information for the system. The default value is Field Support.

swEventTrapLevel	The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, swEventTrap, is sent to configured trap recipients. By default, this value is set at 0, implying that no swEventTrap is sent. Possible values are: 0 - none 1 - critical 2 - error 3 - warning 4 - informational 5 - debug
authTraps	When enabled, the authentication trap, authenticationFailure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 1 (enabled).

There are six communities and respective trap recipients supported by the agent. The first three communities are for read-write access (rw) and the last three are for read-only access (ro). Note that the factory default value for the trap recipient of each community is “0.0.0.0.” The factory default values for the community strings are:

- Community 1: Secret Code
- Community 2: OrigEquipMfr
- Community 3: private
- Community 4: public
- Community 5: common
- Community 6: FibreChannel

Note: In order for an SNMP Management Station to receive a trap generated by the agent, the administrator must configure a trap recipient value to correspond to the IP address of the Management Station.

In addition, for V4.1.x, the trap recipient must be able to pass the Access Control List (ACL) check.

There are six ACL (Access Control List) to restrict SNMP get/set operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing non-zero IP octets. For example, an ACL of “192.168.64.x” enables access for any hosts that start with the specified octets. The connecting host is enabled as “192.168.64.xx,” where *xx* is any number from 0 to 99. All ACL entries also have a flag to set each host-subnet-area to be read-write or read-only. The highest privilege matched out of six entries is given to the access. An ACL check is turned off when all six entries contain “0.0.0.0.”

Note: When secure mode is enabled, the Access Control List feature is incorporated into the WSNMP and RSNMP security policies. Community strings can be changed on the primary FCS switch only and will propagate changes across the fabric. See “Security Commands” on page 941.

Operands

None.

Example

To display SNMP agent configuration information:

```
switch:admin> agtcfgShow
Current SNMP Agent Configuration
    Customizable MIB-II system variables:
            sysDescr = FC Switch
         sysLocation = End User Premise
          sysContact = Field Support.
    swEventTrapLevel = 3
           authTraps = 1 (ON)
SNMPv1 community and trap recipient configuration:
  Community 1: Secret C0de (rw)
    Trap recipient: 192.168.1.51
  Community 2: OrigEquipMfr (rw)
    Trap recipient: 192.168.1.26
  Community 3: private (rw)
    No trap recipient configured yet
  Community 4: public (ro)
    No trap recipient configured yet
  Community 5: common (ro)
    No trap recipient configured yet
  Community 6: FibreChannel (ro)
    No trap recipient configured yet

SNMP access list configuration:
Entry 0:  Access host subnet area 192.168.64.x (rw)]
Entry 1:  No access host configured yet
Entry 2:  No access host configured yet
Entry 3:  No access host configured yet
Entry 4:  No access host configured yet
Entry 5:  No access host configured yet
```

See Also

agtcfgDefault

agtcfgSet

aliasDelete

Delete a port from all local groups.

Synopsis

`aliasDelete` *`portID`*

Availability

Admin

Release

V4.1.x

Description

Use this command to delete a local port from all local alias groups. A group is automatically deleted if it becomes empty after deleting the local port.

Use the `aliasShow` command to show the existing groups with their corresponding N_Ports.

Operands

This command has the following operand:

`portID`	Specify the port ID (in hexadecimal) to be deleted from an alias group. This operand is required.

Example

To delete a port from an existing group:

```
switch:admin> aliasdelete 0x19c00
aliasDelete: succeeded
```

Exit Status

0	Indicates successful operation.
Non Zero	Indicates that the operation has failed.

See Also

aliasJoin
aliasShow
fabricShow
switchShow

aliasJoin

Create or add a member to a group of N_Ports.

Synopsis

`aliasJoin`

Availability

Admin

Release

V4.1.x

Description

Use this command to create an alias group of N_Ports or to add N_Ports to an existing group. Any online N_Port defined in the fabric can be part of a group. An N_Port can be added from any switch that is part of the fabric.

This command is interactive, and prompts you to enter data to create or add to the alias group.

To get a list of online ports currently defined in the fabric use the `nsAllShow` command. If the user wants to add only local ports associated with the local switch then use the `nsShow` command to get list of ports associated with the local switch.

Operands

None.

Example

To create an alias group of N_Ports or to add N_Ports to an existing group enter the following command.

```
switch:admin> aliasJoin
aliasJoin: To add ports to an existing or new multicast group
Number of ports in the group: (1..64) [1]
To set an authorization password? (yes, y, no, n): [no]
no password
Setting the authorization control
Add control: 0 by any, 1 only itself, 2 by creator: (0..2) [0]
Del control: 0 by any, 1 only itself, 2 by creator: (0..2) [0]
Lsn control: 0 by any, 1 by none: (0..1) [1]
Add control 0, Del control 0 Lsn control 1
Setting the Routing Bit: (0x0..0xc) [0x0]
using FC-4 Device Data ...
Setting FC-4 Type: (0x0..0x5d) [0x5]
using 0x05 ...
To set the alias qualifier in WWN format?  (yes, y, no, n): [yes]
Qualifier (in hex): [10:00:00:60:69:80:02:28]
Port ID (in hex): (0x0..0xeffa00) [0] 0x19c00
npList[0] = 0x19c00
aliasJoin: Join request to Group Address 0xfffb00 succeeds
```

Exit Status

0	Indicates successful operation.
Non Zero	Indicates that the operation has failed.

See Also

aliasShow

fabricShow

nsShow

nsAllShow

aliasDelete

aliasPurge

aliasPurge

Remove an alias group.

Synopsis

`aliasPurge` *`groupID`*

Availability

Admin

Release

V4.1.x

Description

Use this command to remove an alias group. The alias group must be identified by its hexadecimal value.

Operands

This command has the following operand:

`groupID`	Specify in hexadecimal the alias group to be removed. This operand is required.

Example

To remove an alias group:

```
switch:admin> aliasPurge 0xfffb00
aliasPurge: succeeded
```

Exit Status

0	Indicates successful operation.
Non Zero	Indicates that the operation has failed.

See Also

aliasJoin
aliasShow
fabricShow
switchShow

aliasShow

Displays local alias server information.

Synopsis

```
aliasShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display local alias server information. If there is no local alias group, the following message is displayed:

```
There is no entry in the Local Alias Server
```

If there are multiple entries in the local alias group, they are displayed.

The following fields are displayed:

Alias ID (V3.1.xonly)	Multicast address presented in format FFFBxx, where xx is the name of the multicast group.	
Alias ID Creator Token (V4.1.xonly)	Multicast address presented in format FFFBxx, where xx is the name of the multicast group.	
Creator	Fibre Channel address ID of Nx_Port that created alias group.	
Creator token	Alias token provided to map to the alias group; it consists of the following entries:	
	rb	Routing bits.
	type	Upper level application type.
	grptype	Alias group type; can only be 10 for multicast.
	qlfr	Alias qualifier of group.
Member list	A list of member address IDs.	

Operands

None.

Example

The following example is for V3.1.x:

```
switch:admin> aliasShow
The Local Alias Server has 1 entry
Alias ID Creator Token [rb, type, grptype, qlfr] Member List
fffb01 fffffd [40, 05, 10, 60000010 12000069] {021200 020800}
```

The following example is for V4.1.x:

```
switch:admin> aliasShow
AliasID Creator Token [rb, type, grptype, qlfr] Member List
fffb00  fffffd [00, 05, 10, 10000060 69800228] { 019c00 }

The Local Alias Server has 1 entry
switch:admin>
```

Exit Status

0	Successful operation.
Non Zero	Indicates that the operation has failed.

See Also

fabricShow

switchShow

aliAdd

Add a member to a zone alias.

Synopsis

```
aliAdd "aliName","member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to add one or more members to an existing zone alias. The alias member list cannot contain another zone alias.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

Note: This command requires an Advanced Zoning License.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

aliName	Specify the name of a zone alias in quotation marks. This operand is required.
member	Specify a member or list of members to be added to the alias, in quotation marks, separated by semicolons. An alias member can be specified by one or more of the following methods: ■ For V3.1.x, a switch domain and physical port number pair. ■ For V4.1.x, a switch domain and port area number pair. View the area numbers for ports using the `switchShow` command. ■ WWN ■ QuickLoop AL_PAs This operand is required.

Example

To add members to the following aliases:

```
switch:admin> aliAdd "array2", "1,2"
switch:admin> aliAdd "array1"", "21:00:00:20:37:0c:72:51"
switch:admin> aliAdd "loop1", "0x02; 0xEF"
```

See Also

aliCreate

aliDelete

aliRemove

aliShow

aliCreate

Create a zone alias.

Synopsis

```
aliCreate "aliName","member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to create a new zone alias.

The zone alias member list must have at least one member (empty lists are not allowed). The alias member list cannot contain another zone alias. Refer to the `zonecreate` command for more information on name and member specifications.

Zone alias members can be specified using the area number to represent a specific port and slot combination. Area numbers are automatically assigned to a port by the Fabric OS. You can view the area numbers using the `switchShow` command.

For V4.1.x, this command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgsave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgenable` command.

Note: This command requires an Advanced Zoning License.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

aliName	Specify a name for the zone alias in quotation marks. This operand is required. A zone alias name must begin with a letter and can be followed by any number of letters, digits, and underscore characters (up to a maximum of 64 characters). Names are case-sensitive, for example, "Ali_1" and "ali_1" are different zone aliases. Blank spaces are ignored. This operand is required.
member	Specify a member or list of members to be added to the alias, in quotation marks, separated by semicolons. An alias member can be specified by one or more of the following methods: ■ For V3.1.x, a switch domain and physical port number pair. ■ For V4.1.x, a switch domain and port area number pair. View the area numbers for ports using the `switchShow` command. ■ WWN ■ QuickLoop AL_PAs This operand is required.

Example

To create zone aliases in V3.1.x:

```
switch:admin> aliCreate "array1", "3,5; 3,8"
switch:admin> aliCreate "array2", "21:00:00:20:37:0c:66:23"
switch:admin> aliCreate "loop1", "0x02; 0xEF; 5,4"
```

The following example shows how to create zone aliases in V4.1.x. Notice that the first example uses area numbers.

```
switch:admin> alicreate "array1", "2,32; 2,33; 2,34"
switch:admin> alicreate "array2", "21:00:00:20:37:0c:66:23'
switch:admin> alicreate "loop1"", "0x02; 0xEF; 5,4"
```

See Also

aliAdd
aliDelete
aliRemove
aliShow

aliDelete

Delete a zone alias.

Synopsis

```
aliDelete "aliName"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to delete a zone alias.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

Note: This command requires an Advanced Zoning License.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operand:

aliName	Specify the name of zone alias to be deleted. This operand must be enclosed in quotation marks. This operand is required.

Example

To delete the zone alias array2:

```
switch:admin> aliDelete "array2""
```

See Also

aliAdd
aliCreate
aliRemove
aliShow

aliRemove

Remove a member from a zone alias.

Synopsis

```
aliRemove "aliName","member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to remove one or more members from an existing zone alias.

If all members are removed, the zone alias is deleted.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

Note: This command requires an Advanced Zoning License.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

aliName	Specify the name of the zone alias to have members removed in quotation marks. This operand is required.
member	Specify a member or list of members to be removed from the alias, in quotation marks, separated by semicolons. An alias member can be specified by one or more of the following methods: ■ For V3.1.x, a switch domain and physical port number pair. ■ For V4.1.x, a switch domain and port area number pair. View the area numbers for ports using the `switchShow` command. ■ WWN ■ QuickLoop AL_PAs This operand is required. The member list is located by an exact string match, therefore, it is important to maintain the order when removing multiple members. For example, if a zone alias contains "1,2; 1,3; 1,4" then removing "1,3; 1,4" succeeds, but removing "1,4; 1,3" fails.

Example

To remove a World Wide Name from "array1":

```
switch:admin> aliRemove "array1", "3,5"
switch:admin> aliRemove "array1", "21:00:00:20:37:0c:76:8c"
switch:admin> aliRemove "array1", "0xEF"
```

See Also

aliAdd

aliCreate

aliDelete

aliShow

aliShow

Displays zone alias information.

Synopsis

```
aliShow "pattern"
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display zone configuration information.

If a parameter is specified, it is used as a pattern to match zone alias names; those that match in the defined configuration are displayed.

Note: This command requires an Advanced Zoning License.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

pattern	A POSIX style regular expression used to match zone alias names. This operand must be enclosed in quotation marks. Patterns may contain: ■ Question mark (?) that matches any single character ■ Asterisk (*) that matches any string of characters ■ Ranges that match any character within the range. Ranges must be enclosed in brackets, for example, [0-9] or [a-f] This operand is optional.
mode (V4.1.x only)	Specify 0 to display the contents of the transaction buffer (the contents of the current transaction), or specify 1 to display the contents of the non-volatile memory. The default value is 0. This operand is optional.

If no parameters are specified, all zone configuration information (both defined and effective) is displayed. See `cfgShow` for a description of this display.

Example

To show all zone aliases beginning with “arr”:

```
switch:admin> aliShow “arr*”
alias: array1  21:00:00:20:37:0c:76:8c
alias: array2  21:00:00:20:37:0c:66:23
```

See Also

aliAdd

aliCreate

aliDelete

aliRemove

backplanetest

Backplane connection test for multiple blade configured system.

Synopsis

```
backplanetest [-slot number][-passcnt count][-payload
value][-pat type][-ports list][-verbose mode]
```

Availability

Admin

Release

V4.1.x

Description

Use this command to verify the function of the backplane connection of the blades through the backend external ports. This command is for the StorageWorks Core switch only. This command is not part of blade diagnostics; it is used to verify backplane connection by using the blade's frame transmitter/receiver features.

When this test is run, no other diagnostic can be executed until this test completes.

Options

This command has the following operands:

-slot number	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 10 slots. Slots number 5 and 6 are control processor cards, and slots 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
-passcnt count	Specify the number of times to perform this test. The default value is 1. This operand is optional.

-payload value

Specify the byte size of the test frame payload. The payload size must be in multiples of 4 and the minimum size is 16. The default value is 512 bytes. This operand is optional.

-pat type

Specify the test pattern type used in the test frame payload. The default test is 17(jCRPAT). The following test patterns can be specified:

- 1 byte fill
- 2 word fill
- 3 quad fill
- 4 byte not
- 5 word not
- 6 quad not
- 7 byte ramp
- 8 word ramp
- 9 quad ramp
- 10 byte lfsr
- 11 random
- 12 crpat
- 13 cspat
- 14 chalf sq
- 15 cqtr sq
- 16 rdram pat
- 17 jCRPAT (default)
- 18 jCJTPAT
- 19 jCSPAT

-ports list

Specify a list of blade ports to test. By default, all the blade ports in the specified slot are used. See the `itemlist` help pages for further details.

-verbose mode

Specify verbose mode with a value of 1, to have this command display more detailed information. The default value is 0. This operand is optional.

Examples

Test backplane connections on a StorageWorks Core switch:

```
switch:admin> backplanetest -ports 1/16, 18, 20 -payload 2048 -verbose 1
Running Backplane Conn Test .....
Checking for ports segmented

Test frame info for Backplane Connection Test:
# of frames:  1
sid data:     0xffffffd
did data:     0xffffffd
payload size: 2048 bytes
        (using jCRPAT data, seed: 0xa363c42b)

BPC_TX   1     P->B Sl3 Ch2 cPt0(bPt16)->Sl1 Ch2 ...
BPC_RX   1     P->B Sl3 Ch2 cPt0(bPt16)->Sl1 Ch2 ...
BPC_TX   1     B->P Sl1 Ch2 cPt0(bPt16)->Sl3 Ch2 ...
BPC_RX   1     B->P Sl1 Ch2 cPt0(bPt16)->Sl3 Ch2 ...
Checking for ports segmented
BPC_TX   1     P->B Sl4 Ch2 cPt2(bPt18)->Sl1 Ch2 ...
BPC_RX   1     P->B Sl4 Ch2 cPt2(bPt18)->Sl1 Ch2 ...
BPC_TX   1     B->P Sl1 Ch2 cPt2(bPt18)->Sl4 Ch2 ...
BPC_RX   1     B->P Sl1 Ch2 cPt2(bPt18)->Sl4 Ch2 ...
Checking for ports segmented
BPC_TX   1     P->B Sl2 Ch2 cPt4(bPt20)->Sl1 Ch2 ...
BPC_RX   1     P->B Sl2 Ch2 cPt4(bPt20)->Sl1 Ch2 ...
BPC_TX   1     B->P Sl1 Ch2 cPt4(bPt20)->Sl2 Ch2 ...
BPC_RX   1     B->P Sl1 Ch2 cPt4(bPt20)->Sl2 Ch2 ...
passed.
Test Complete: "backplanetest" Pass 1 of 1
Duration 0 hr, 0 min & 5 sec (0:0:5:429).
switch:admin>
```

Errors

When this command detects failures, the subtest may report one or more of the following error messages:

```
DATA
TIMEOUT
XMIT
```

See Also

backport

backPort

Test for back-end miniswitch to miniswitch links.

Synopsis

```
backport [-nframes num][-ports list][-lb_mode mode]
[-fr_type type][-extonly enable]
```

Availability

Admin

Release

V4.1.x

Description

Use this command to test the backplane routing and VC allocation. This test applies to single blade as well as multi-blade systems.

The following items are tested:

- Proper back-end port domain routing setup such that every user port has a valid path to every other user port. If a valid path does not exist between any two user ports then that path will fail to transmit the first frame between the two ports.
- Proper VC mapping such that an arbitrarily large number of frames may be transmitted without running out of credit. If the VC credit mapping is not correct then the test will fail after enough frames have been sent to exhaust the initial credit. VC mapping is not tested if the `extonly` operand is enabled.
- Proper Trunking of backend ports. The frames are sent in bursts. If the trunking is not set up properly the burst of frames will not arrive in order.

Note: Since the frames are received without "spinning" first, this test is not as exhaustive as `spinFab`.

- ASIC errors along each path. The test will check for CRC and ENC errors for each port used between the source and destination ports to help isolate failures. It will also check that each member of every trunk group along the path has sent or received at least one frame.

Note: Area routing between user ports is not tested.

Operands

This command has the following operands:

-nframes num	Specify the number of frame sequences to send. The default value is 100.
-ports list	Specify a list of user ports. The default value is all user ports.
-lb_mode mode	Specify the loopback mode for source and destination standard meanings. The default mode is 5. The valid modes are: 0 cable loopback 1 plug loopback 2 external loopback (SERDES) 5 internal loopback (ASIC)
-fr_type type	Specify the frame types to send. The default type is 1. The valid types are: 0 single frame 1 `spinFab` frames 2 `spinFab` 1K frames

-extonly enable

Specify 1 to enable external test only mode. The default value is 0. This command normally sends bursts of frames from each port under test to every other port in the list. In *extonly* mode, `backPort` will send only one burst of frames to each port from each miniswitch to miniswitch link. This tests all of the external connections with only (K*N) frames instead of the N^2 frames required in the all to all mode.

This mode is intended to be used in ESS/burn-in testing to optimize test time. This command tests only the external connections between each miniswitch and txdpath is used to test the internal ASIC to ASIC paths. In this mode the test does NOT check all of the VC allocation so it should not be used for software regression test.

Valid values are:

0 Send frames from all ports to all other ports.

1 Send only one burst of frames to each link.

Example

To test for back-end miniswitch to miniswitch links:

```
switch:admin> backport

Running Backport Test .....
switch:admin>
```

Errors

When the command detects failures, the test may report one or more of the following error messages:

```
0x3a INIT
0x28 ERR_STAT
0x29 XMIT
0x2c PORT_DIED
0x2e PORT_STOPPED
0x38 ERR_STATS
```

See Also

crossporttest

portloopbacktest

spinsilk

spinfab

backSpace

Set an alternate backspace character.

Synopsis

`backSpace` *[mode]*

Availability

All users (display).

Admin (modify).

Release

V3.1.x

Description

This command changes the backspace character used by the shell between the default value of BACKSPACE (hex 08) and an alternate value of DEL (hex 7F).

Operands

This command has the following operand:

mode	Specify 0 to use the standard backspace character (BACKSPACE). Specify 1 to use the alternate backspace character (DEL). This operand is optional.

Specify the command with no operand to display the current setting.

Example

To display the current backspace character and change it to DEL:

```
switch:admin> backSpace
BackSpace character is BACKSPACE (hex 08)
switch:admin> backSpace 1
Committing configuration...done.
BackSpace character is DEL (hex 7F)
```

bannerset

Set the banner on the local switch.

Synopsis

`bannerset` *`[banner]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set the banner on the local switch.

The banner is a string of alphanumeric characters. It is displayed whenever a user tries to log into a switch.

The banner can be created using the `banner` operand or by entering the `bannerset` command without an operand, making the session interactive.

If you enter the banner text using the interactive method, the maximum length is 1022 characters. If the banner text length exceeds the maximum allowed, the software truncates the input. To close the banner text string, enter a period at the beginning of a new line.

Operands

This command has the following operand:

`banner`	Specify a text string to be displayed when a user logs in. If you enter the banner text using the `banner` operand, the maximum length is only 116 characters. This operand is optional.

Examples

To set a new banner for a switch:

```
switch:admin> bannerset “my banner”

Please input context of security banner (press “.” RETURN at the beginning of
a newline to finish input): Do not log into this switch if you are not an
authorized administrator.
.
switch:admin>
```

See Also

bannershow

bannershow

Displays the banner text.

Synopsis

`bannershow`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display the contents of the banner.

Operands

None.

Examples

To display the banner for a switch:

```
switch:admin> bannershow
Banner:
Do not log into this switch if you are not an authorized administrator.
switch:admin>
```

See Also

bannerset

bcastShow

Displays broadcast routing information.

Synopsis

```
bcastShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the broadcast routing information for all ports in the switch. The broadcast routing information indicates all ports that are members of the broadcast distribution tree, that is, ports that are able to send and receive broadcast frames.

Normally, all F_Ports and FL_Ports are members of the broadcast distribution tree. The broadcast path selection protocol selects the E_Ports that are part of the broadcast distribution tree. The E_Ports are chosen in such a way to prevent broadcast routing loops.

The following fields are displayed:

Group	The multicast group ID of the broadcast group.
Member Ports	A map of all ports in broadcast tree.
Member ISL Ports	A map of all E_Ports in broadcast tree.
Static ISL Ports	Reserved.

The broadcast routing information for the ports is displayed as a set of hexadecimal bit maps. For more information on reading hexadecimal bit maps, refer to the *HP StorageWorks Fabric Operating System Procedures Version 3.1.x/4.1.x User Guide*.

Note: The output from this command varies depending on switch type.

Operands

None.

Examples

To display the broadcast routing information for all ports in the switch:

```
switch:admin> bcastShow

Group   Member Ports    Member ISL Ports        Static ISL Ports

------------------------------------------------------------------
 256     0x00012083        0x00002080              0x00000000
         0x00000000        0x00000000              0x00000000
         0x00000000        0x00000000              0x00000000
switch:admin>
```

See Also

mcastShow

portRouteShow

bladeBeacon

Set blade beaconing mode on or off.

Synopsis

`bladeBeacon` *`[slotnumber] mode`*

Availability

Admin

Release

V4.1.x

Description

Use this command to set the blade beaconing mode on or off. Specify mode 1 to enable beaconing mode or specify mode 0 to disable beaconing.

Note: This command is only available on the StorageWorks Core switch.

When beaconing mode is enabled, the port LEDs will flash amber in a running pattern from port 0 through port 15 and back again. The pattern continues until the user turns it off. This can be used to locate a physical unit.

Beaconing mode only takes over the port LEDs, it does not change the switch's functional behavior. The normal flashing LED pattern (associated with an active, faulty or disabled port for example) is suppressed and only the beaconing pattern is displayed. If a diagnostic frame based test (such as `portLoopbackTest`, `crossPortTest`, or `spinSilk`) is executed, the two LED patterns are inter-woven. The diagnostic test flickers the LEDs green and the beaconing mode runs the LEDs amber.

The `switchShow` command can be used to display if the status of blade beaconing mode is on or off.

Operands

This command has the following operands:

slotnumber	Specify the slot number on which to enable `bladeBeacon`.
mode	Specify a value of 1 to set beaconing mode ON. Specify a value of 0 to set beaconing mode OFF. This operand is required.

Example

To turn the blade in slot 2 beaconing mode ON and then OFF:

```
switch:admin> bladeBeacon 2 1
switch:admin> bladeBeacon 2 1
```

See Also

switchShow

bladeDiag

Run diagnostics on a switch blade.

Synopsis

`bladediag [[--slot] slotno][-log logfile]`

Availability

Admin

Release

V4.1.x

Description

Use this command to run a suite of diagnostics tests on the specified switch blade. To run this command, you must install loopback plugs on every port. The tests executed are:

- portregtest
- centralmemorytest
- cmitest
- camtest
- filtertest
- statstest
- portloopbacktest
- txdpath
- crossporttest
- turboramtest
- spinsilk
- backport
- diagshow

Note: To run this command, you must disable the entire switch with the `switchdisable` command.

Compared to `bladediagshort`, this is a comprehensive test for blade functionality which also involves backplane connections.

Options

This command has the following operands:

[--slot] slotno	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required.
-log logfile	Specify that the output of the command will be placed in a file named by the *logfile* argument. The log file will contain all activity that occurred during the execution of the command. All error messages are also saved in the logfile. If this option is not specified, no log file is created.

Example

To run a suite of diagnostics on blade 1:

```
switch:admin> bladediag --slot 1
Testing slot: 1, user ports: 0 1 2 3 4 5 6 7 8 9 10 ......
PortRegTest
Running Port Register Test ....
passed.
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 2 min & 14 sec (0:2:14:655).
passed.
Test return status: 0
CentralMemoryTest
Running centralmemorytest ............ passed.
Test Complete: "centralmemorytest" Pass 1 of 1
Duration 0 hr, 0 min & 18 sec (0:0:18:415).
passed.
Test return status: 0
<output truncated>
```

To run a suite of diagnostics:

```
switch:admin> bladediag --slot 1
Testing slot: 1, user ports: 0 1 2 3 4 5 6 7 8 9 10 ......
PortRegTest
Running Port Register Test ....
passed.
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 2 min & 14 sec (0:2:14:655).
passed.
Test return status: 0
CentralMemoryTest
Running centralmemorytest ............ passed.
Test Complete: "centralmemorytest" Pass 1 of 1
Duration 0 hr, 0 min & 18 sec (0:0:18:415).
passed.
Test return status: 0
<output truncated>
```

See Also

backport

bladediagshort

camtest

centralmemorytest

cmitest

crossporttest

diagshow

filtertest

portloopbacktest

portregtest

spinsilk

statstest

txdpath

bladeDiagShort

Run diagnostics on a switch blade.

Synopsis

```
bladediagshort [[--slot] slotno][-log logfile]
```

Availability

Admin

Release

V4.1.x

Description

Use this command to run a suite of diagnostics tests on the specified switch blade. To run this command you must install loopback plugs on every port. The tests executed are:

- portregtest
- centralmemorytest
- cmitest
- camtest
- filtertest
- statstest
- portloopbacktest
- txdpath
- crossporttest
- spinsilk
- backport
- diagshow

Note: To run this command, you must disable the entire switch with the `switchdisable` command.

Compared to `bladediag`, this is a limited test for single blade functionality, which does not involve backplane connections.

Options

This command has the following operands:

`[--slot] slotno`	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 10 slots. Slots number 5 and 6 are control processor cards, and slots 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
`-log logfile`	Specify that the output of the command will be placed in a file named by the *`logfile`* argument. The log file will contain all activity that occurred during the execution of the command. All error messages are also saved in the logfile. If this option is not specified, no log file is created.

Example

To run a suite of diagnostics on blade 1:

```
switch:admin> bladediagshort --slot 1
Testing slot: 1, user ports: 0 1 2 3 4 5 6 7 8 9 10 ......
PortRegTest
Running Port Register Test ....
passed.
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 2 min & 14 sec (0:2:14:655).
passed.
Test return status: 0
CentralMemoryTest
Running centralmemorytest ............ passed.
Test Complete: "centralmemorytest" Pass 1 of 1
Duration 0 hr, 0 min & 18 sec (0:0:18:415).
passed.
Test return status: 0
<output truncated>
```

To run a suite of diagnostics on blade 1:

```
switch:admin> switchdiagshort
Testing user ports: 0 1 2 3 4 5 6 7 8 9 10 ......
PortRegTest
Running Port Register Test ....
passed.
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 2 min & 14 sec (0:2:14:655).
passed.
Test return status: 0
CentralMemoryTest
Running centralmemorytest ............ passed.
Test Complete: "centralmemorytest" Pass 1 of 1
Duration 0 hr, 0 min & 18 sec (0:0:18:415).
passed.
Test return status: 0
<output truncated>
```

See Also

backport
bladediag
camtest
centralmemorytest
cmitest
crossporttest
diagshow
filtertest
portloopbacktest
portregtest
spinsilk
statstest
txdpath

bladedisable

Disable a blade.

Synopsis

`bladedisable` *`[slotnumber]`*

Availability

Admin

Release

V4.1.x

Description

Use this command to disable a blade. All Fibre Channel ports are taken offline. If the switch was connected to a Fabric through this blade, the remaining switches reconfigure, and this switch will configure based on the other blade ports.

A blade must be disabled before making configuration changes or before running many of the diagnostic tests.

A blade does not need to be disabled before rebooting or powering off.

To observe and verify the disable process, watch the front panel LEDs change to slow flashing yellow as each port of the blade is disabled.

Note: A blade cannot be disabled or enabled when the switch is disabled.

Operands

This command has the following operand:

`[slotnumber]`	Specify the slot number to be disabled.

Example

Disable a blade in slot 2:

```
switch:admin> bladedisable 2
```

See Also

switchshow
bladeenable
portdisable
protenable

bladeenable

Enable a blade.

Synopsis

`bladeenable [slotnumber]`

Availability

Admin

Release

V4.1.x

Description

Use this command to enable a blade. All Fibre Channel ports within the blade which did not fail POST are enabled. These ports may come online if connected to a device, or remain offline if disconnected. The switch may need to be enabled if it was previously disabled to make configuration changes or to run diagnostics.

If the switch is connected to a Fabric, it rejoins the Fabric. After this command is issued, the 10-second Fabric stability countdown is displayed. If this switch remains the Principal switch at the end of the countdown, then it assigns itself a Domain Id. If another switch assumes the Principal role, then this switch becomes a Subordinate switch, and accepts a Domain Id from the Principal.

To observe and verify the enable process, watch the front panel LEDs change from slow flashing yellow as each port is enabled. The LEDs change to green for online ports, may remain black for disconnected ports, or change to yellow for ports that do not initialize.

Note: A blade cannot be disabled or enabled when the switch is disabled.

Operands

This command has the following operand:

slotnumber	Specify the slot number to be enabled.

Example

Enable a blade in slot 2:

```
switch:admin> bladeenable 2
10  9  8  7  6  5  4  3  2  1
fabric Principal switch
```

See Also

switchshow

bladedisable

portdisable

portenable

bladePropShow

Displays blade property.

Synopsis

`bladePropShow` *`[-slot slot]`*

Availability

All users.

Release

V4.1.x

Description

Use this command to display the properties of a blade.

Operands

This command has the following operand:

`-slot slot`	Specify the slot number of the blade you want to run diagnostics on.

Example

To display the blade properties for blade 7:

```
switch:admin> bladepropshow -slot 7

Slot: 7
[2,4/8/64]
<0,1657/0001 1,1657/0001>
<2,1657/0001 3,1657/0001>
<4,1657/0001 5,1657/0001>
<6,1657/0001 7,1657/0001>
<0,8>=<1,9> <0,10>=<2,9> <0,6>=<3,7>
<1,9>=<0,8> <1,6>=<2,7> <1,10>=<3,9>
<2,9>=<0,10> <2,7>=<1,6> <2,10>=<3,11>
<3,7>=<0,6> <3,9>=<1,10> <3,11>=<2,10>
```

See Also

chippropshow
ptpropshow

bsn

Displays the serial number.

Synopsis

```
bsn
```

Availability

Admin

Release

V3.1.x

Description

Use this command to display the serial number.

Note: To display the serial number for a component in V4.1.x, use the `chassisshow` command.

Operands

None.

Examples

To display the serial number:

```
switch:admin> bsn
FT00X800506
```

See Also

ssn

camTest

Functional test of the CAM memory. Verify QuickLoop's Content Addressable Memory (CAM) SID translation.

Synopsis: V3.1.x

```
camtest [passcnt]
```

Synopsis: V4.1.x

```
camtest [--slot number][-passcnt count][-txport
itemlist]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to verify that the Content Addressable Memory (CAM) is functionally OK by performing hit and miss tests. The CAM is used by QuickLoop to translate the SID.

When a CAM is presented with data, it checks if the data is present in its memory. A hit means the data is found in the CAM. A miss means the data is not found.

In this test, the CAM is filled with 4 kinds of data patterns:

1. A walking 1
2. A walking 0
3. A random pattern
4. An inverted version of the random pattern above

Once filled with each of the patterns above, a frame is sent and looped back internally. If a hit is expected (when the random or inverted random pattern is used) the original SID in the frame transmitted is received translated with the

domain and area fields of the SID zeroed. If a miss is expected (when the walking 1 or walking 0 pattern is used) the original SID in the frame transmitted is received unchanged.

Note: This command may not be executed on an enabled switch. You must first disable the switch using the `switchDisable` command.

Operands

This command has the following operand:

passcnt (V3.1.x only)	Specify the number of times to perform this test. The default value is 1.
--slot number (V4.1.x only)	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and is designed to operate on fixed port count products.
-passcnt count (V4.1.x only)	Specify the number of times to perform this test. The default value is 1.
-txport itemlist (V4.1.x only)	Specify a list of blade ports to test. By default, all the blade ports in the specified slot (`--slot`) will be used. See the `itemlist` help pages for further details.

Example

To verify that Content Addressable Memory (CAM) is functioning correctly in V3.1.x:

```
switch:admin> camtest
Running CAM Test .............. passed.
```

To verify that CAM is functioning correctly in V4.1.x:

```
switch:admin> camtest -txports 1/1
Running CAM Test ..............Test Complete: "camtest" Pass 1 of 1
Duration 0 hr, 0 min & 5 sec (0:0:5:14).
passed.
```

Errors

When failures are detected, the subtest may report one or more of the following error messages:

- For V3.1.x

```
DIAG-CAMINIT
DIAG-XMIT
DIAG-CAMSID
```

- For V4.1.x

```
DIAG-CAMFLTR
DIAG-CAMINIT
DIAG-CAMSID
DIAG-CAMSTAT
DIAG-CAMXMIT
```

See Also

centralmemorytest

cmemretentiontest

cmitest

crossporttest

itemlist

portloopbacktest

portregtest

ramtest

spinsilk

sramretentiontest

centralMemoryTest

Test ASIC central memory operation.

Synopsis: V3.1.x

```
centralMemoryTest [passcount, datatype, dataseed]
```

Synopsis: V4.1.x

```
centralmemorytest [--slot number][-passcnt
count][-datatype type][-ports itemlist][-seed value]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to execute an address and data bus verification of the ASIC SRAMs which serve as the Central Memory.

Note: This command cannot be executed on an enabled switch. You must first disable the switch using the `switchDisable` command.

Note: Subtest 3 is not available on 2 Gbps-capable products.

The test consists of 6 subtests:

Subtest 1

The BISR subtest executes the Built-In-Self-Repair (BISR) circuitry in each ASIC. The BISR executes its own BIST, and cells found bad are replaced by redundant rows provided in each SRAM in the ASIC. Once replaced, the BIST is executed again.

The firmware merely sets up the hardware for the BISR/BIST operation and checks the results. If the done bit in each SRAM is not set within a time-out period, it reports the DIAG-CMBISRTO. If any of the SRAMs within the ASIC fails to map out the bad rows, its fail bit is set and the DIAG-CMBISRF error generated.

For V4.1.x, the firmware merely sets up the hardware for the BISR/BIST operation and checks the results. If the done bit in each SRAM is not set within a time-out period, it reports the DIAG-CMBISRTO.

If any of the SRAMs within the ASIC fails to map out the bad rows, its fail bit is set and the DIAG-CMBISRF error is generated.

Subtest 2

The data write/read subtest executes the address and data bus verifications by running a specified unique ramp pattern D to all SRAMs in all ASICs in the switch. When all SRAMs are written with pattern D, the SRAMs are read and compared against the data previously written. The above step is repeated with the complemented pattern ~D to ensure that each data bit is toggled during the test.

For V3.1.x, the default pattern used (by POST also) is a QUAD_RAMP with a seed value randomly obtained by reading the current content of the cpu timer counter.

For example, the pattern D could take the form of:

ASIC #1: 0x41176, 0x41177, 0x41178, 0x41179, ...

ASIC #2: 0x51ef6, 0x51ef7, 0x51ef8, 0x51ef9, ...

ASIC #3: 0x62c76, 0x62c77, 0x62c78, 0x62c79, ...

ASIC #4: 0x739f6, 0x739f7, 0x739f8, 0x739f9, ...

The complemented pattern ~D would then be:

ASIC #1: 0xfffbee89, 0xfffbee88, 0xfffbee87, ...

ASIC #2: 0xfffae109, 0xfffae108, 0xfffae107, ...

ASIC #3: 0xfff9d389, 0xfff9d388, 0xfff9d387, ...

ASIC #4: 0xfff8c609, 0xfff8c608, 0xfff8c607, ...

For V4.1.x, the default pattern used (by POST also) is a QUAD_RAMP with a seed value of 0.

Subtest 3

The ASIC-to-ASIC connection subtest verifies that any port can read the data from any of the ASICs in the switch; thus verifying both the logic transmitting and receiving the data and the physical transmit data paths on the main board connecting all the ASICs to each other.

Note: Subtest 3 is not available on 2 G based switches.

The test method is as follows:

1. Fill the Central Memory of all ASICs with unique frames.
2. Set up the hardware such that each ASIC is read by all of the MAX number of ports in the switch. Data received is compared against the frame written into the ASIC.
   - Port 0 reads the Central Memory in ASIC 0
   - Port 1 reads the Central Memory in ASIC 0
   - Port 14 reads the Central Memory in ASIC 0
   - Port 15 reads the Central Memory in ASIC 0
   - Port 0 reads the Central Memory in ASIC 1
   - Port 1 reads the Central Memory in ASIC 1
   - Port 14 reads the Central Memory in ASIC 1
   - Port 15 reads the Central Memory in ASIC 1
   - Port 15 reads the Central Memory in ASIC 2
   - Port 15 reads the Central Memory in ASIC 3
3. Repeat the steps above for the complemented pattern.
4. Repeat for each ASIC pair in the blade under test.

The pattern used is generated similarly as in subtest 2 above except that only 2112 bytes are generated.

Subtest 4

The forced bad parity error subtest verifies that a bad parity can be detected, and that its error flag and interrupt bits are set.

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.
2. Write 64 bytes with bad parity to all ASICs at offset 0.
3. Read each of the ASICs at offset 0 and check that the error and interrupt bits are set.
4. Repeat the steps above for offset 1, 2, 3, ... 10.

Subtest 5

The forced bad buffer number error subtest verifies that the bad buffer number in the data packet can be detected, its error flag and interrupt bits are set.

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.
2. Set up the hardware so that transmission of data includes a bad buffer number.
3. For each ASIC X in the switch, do:
   For each of the 11 possible offsets, do:
   a. Write a 64 byte pattern in the Central Memory.
   b. Read X from all ASIC Y in the switch.
   c. Check that X has:
      — Its interrupt status bits set.
      — An error type of buffer number error.
      — The port number in error is the receiver port (which is the base port of asic Y).
   d. Check that all other ASICs (~X) DO NOT get:
      — An interrupt, or
      — An error flagged
   e. Reading the error register clears the CMEM interrupt bit; ready for the next offset to test.

Subtest 6

The forced bad chip number error subtest verifies that the bad buffer number in the data packet can be detected, its error flag and interrupt bits are set.

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.
2. Set up the hardware so that transmission of data includes a bad buffer number.
3. For each ASIC X in the switch, do:
   For each of the 11 possible offsets, do:
   a. Write a 64 byte pattern in the Central Memory.
   b. Read X from all ASIC Y in the switch.
   c. Check that all ASIC Y has its:
      — Its interrupt status are set.
      — An error type of chip number error.
      — The port number in error is the receiver port (which is the base port of asic Y).
   d. Reading the error register clears the CMEM interrupt bit; ready for the next offset to test.

Operands

This command has the following operands:

passcount (V3.1.x only)	Specify the number of test passes to run. By default the test will be run one time. The *passcount* parameter may be used to run the specified number of passes.
datatype (V3.1.x only)	Specify the type of data pattern to use. By default, type 9, QUAD_RAMP is used. For a complete list of supported data patterns, run the `dataTypeShow` command. Some common settings are: ■ 1 Byte fill pattern. ■ 2 Word fill pattern. ■ 3 Quad fill pattern. ■ 9 Quad ramp (Addr=Data) pattern. ■ 11 Random data.

`-ports ports` (V3.1.x only)	Specify a set of ports to test. The data patterns are written into the ports specified and verified by reading from the ports.
`dataseed` (V3.1.x only)	Specify the data pattern seed to be used. The default seed value is 0. Some data types, like BYTE_LFSR, do not require any seed value.
`--slot number` (V4.1.x only)	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and is designed to operate on fixed port count products.
`-passcnt count` (V4.1.x only)	Specify the number of test passes to run. By default the test will be run one time.
`-datatype type` (V4.1.x only)	Specify the type of data pattern to use. By default, type 9, QUAD_RAMP is used. For a complete list of supported data patterns run the `datatypeshow` command. Some common settings are: 1 BYTE_FILL pattern. 2 WORD_FILL pattern. 3 QUAD_FILL pattern. 9 QUAD_RAMP (Addr=Data) pattern. 11 RANDOM pattern.
`-ports itemlist` (V4.1.x only)	Specify a set of ports to test. Specify a list of blade ports to test. The Ports list is translated into a matching quad list before the test is run. By default all the blade ports in the specified slot (*`--slot`*) are tested. See the `itemlist` help pages for further details.
`-seed value` (V4.1.x only)	Specify the data pattern seed to be used. The default seed value is 0.

Example

To test the ASIC central memory in V3.1.x:

```
switch:admin> centralMemoryTest
Running Central Memory Test ... passed.
Test complete: "centralmemorytest" Pass 1 of 1.
Duration 0 hr, 0 min & 19 sec (0:0:19:500)
passed.
```

To test the ASIC central memory in V4.1.x:

```
switch:admin> centralmemorytest -ports 1/0-1/15
Running centralmemorytest ............ passed.
Test Complete: "centralmemorytest" Pass 1 of 1
Duration 0 hr, 0 min & 5 sec (0:0:5:412).
passed.
```

Errors

When this command detects failures, each subtest may report one or more of the following error messages:

- For V3.1.x:

```
Subtest 1
    1) DIAG-CMBISRF

Subtest 2
    1) DIAG-LCMTO
    2) DIAG-LCMRS
    3) DIAG-LCMEM

Subtest 3
    1) DIAG-CMNOBUF
    2) DIAG-LCMTO
    3) DIAG-LCMRS
    4) DIAG-LCMEMTX

Subtest 4
    1) DIAG-TIMEOUT
    2) DIAG-BADINT
    3) DIAG-CMERRTYPE
    4) DIAG-CMERRPTN

Subtest 5
    1) DIAG-TIMEOUT
    2) DIAG-BADINT
    3) DIAG-CMERRTYPE
    4) DIAG-CMERRPTN

Subtest 6
    1) DIAG-TIMEOUT
    2) DIAG-BADINT
    3) DIAG-CMERRTYPE
    4) DIAG-CMERRPTN
```

- For V4.1.x:

```
Subtest 2
    LCMEM_ERR
    LCMRS_ERR
    LCMTO_ERR

Subtest 3
    CM_NO_BUF
    LCMEMTX_ERR
    LCMRS_ERR
    LCMTO_ERR

Subtest 4
    BAD_INT
    CM_ERR_PTN
    CM_ERR_TYPE
    TIMEOUT

Subtest 5
    BAD_INT
    CM_ERR_PTN
    CM_ERR_TYPE
    TIMEOUT

Subtest 6
    BAD_INT
    CM_ERR_PTN
    CM_ERR_TYPE
    TIMEOUT
```

See Also

camtest

cmemretentiontest

cmitest

crossporttest

filtertest

portloopbacktest

portregtest

ramtest

spinsilk

sramretentiontest

cfgactvshow

Displays Effective zone configuration information.

Synopsis

```
cfgactvshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the Effective zone configuration information.

The Effective configuration is a single zone configuration that is currently in effect. The devices that an initiator sees are based on this configuration. The Effective configuration is built when a specified zone configuration is enabled.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To show the Effective zone configuration information:

```
switch:admin> cfgactvshow
Effective configuration:
cfg:   c4
zone:  z3      33:07:06:05:04:03:02:01
zone:  z4      44:01:23:45:67:89:a0:bc
switch:admin>
```

See Also

cfgclear

cfgcreate

cfgdelete

cfgremove

cfgsave

cfgshow

cfgAdd

Add a member to a zone configuration.

Synopsis

```
cfgAdd "cfgName","member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to add one or more members to an existing zone.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

cfgName	Specify a name for the zone configuration in quotation marks. This operand is required.
member	Specify a zone member or a list of zone members to be added to the configuration, in quotation marks, separated by semicolons. Members can be specified in one or more of the following ways: ■ Zone names ■ QuickLoop names ■ FA (Fabric Assist) zone names This operand is required.

Example

To add two new zones to the configuration “Test_cfg”:

```
switch:admin> cfgAdd “Test_cfg”, “redzone; bluezone”
```

See Also

cfgClear
cfgCreate
cfgDelete
cfgDisable
cfgEnable
cfgRemove
cfgSave
cfgShow
cfgTransAbort
cfgtransshow

cfgClear

Clear all zone configurations.

Synopsis

```
cfgClear
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to clear all zone information in the transaction buffer. All defined zone objects in the transaction buffer are deleted. If an attempt is made to commit the empty transaction buffer while a zone configuration is enabled, a warning is displayed, to first disable the enabled zone configuration or to provide a valid configuration with the same name.

After clearing the transaction buffer using the `cfgClear` command, use the `cfgDisable` command to commit the transaction, and disable and clear the zone configuration in non-volatile memory for all the switches in the fabric, across reboots.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To clear all zones, and then clear non-volatile memory:

```
switch:admin> cfgClear
Do you really want to clear all configurations?
(Yes, y, no, n): [no] yes
switch:admin> cfgdisable
```

See Also

cfgAdd

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgTransAbort

cfgtransshow

cfgCreate

Create a zone configuration.

Synopsis

```
cfgCreate "cfgName","member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to create a new zone configuration.

A zone configuration name must begin with a letter and can be followed by any number of letters, numbers, and the underscore character. Names are case sensitive, for example, “Cfg_1” and “cfg_1” are different zone configurations. Blank spaces are ignored.

The zone configuration member list must have at least one member. Empty member lists are not allowed.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

Refer to the `zonecreate` command for more information on name and member specifications.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See “Security Commands” on page 941.

Operands

This command has the following operands:

cfgName	Specify a name for the zone configuration in quotation marks. This operand is required.
member	Specify a member or list of members to be added to zone configuration, in quotation marks, separated by semicolons. Members can be specified in one or more of the following methods: ■ Zone names ■ QuickLoop names ■ FA (Fabric Assist) zone names This operand is required.

Example

To create a configuration containing three zones:

```
switch:admin> cfgCreate "Test_cfg", "redzone; bluezone; greenzone"
```

See Also

cfgAdd

cfgClear

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgTransAbort

cfgtransshow

cfgDelete

Delete a zone configuration.

Synopsis

```
cfgDelete "cfgName"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to delete a zone configuration.

This command changes the Defined Configuration. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operand:

`cfgName`	Specify the name of zone configuration to be deleted in quotation marks. This operand is required.

Example

To delete a zone configuration:

```
switch:admin> cfgDelete "Test_cfg"
```

See Also

cfgAdd
cfgClear
cfgCreate
cfgDisable
cfgEnable
cfgRemove
cfgSave
cfgShow
cfgTransAbort
cfgtransshow

cfgDisable

Disable a zone configuration.

Synopsis

```
cfgDisable
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to disable the current zone configuration. The fabric returns to non-zoning mode where all devices see each other. It also commits the zone configuration in the transaction buffer to volatile and non-volatile memory.

This command ends and commits the current zoning transaction. If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch is automatically aborted. A message is displayed on the other switch notifying the transation abort.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To disable the current zone configuration:

```
switch:admin> cfgDisable
Updating flash...
switch:admin>
```

See Also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgTransAbort

cfgtransshow

cfgEnable

Enable a zone configuration.

Synopsis

`cfgEnable "cfgName"`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to commit any zone configuration in the transaction buffer to the volatile and non-volatile memory and enable the specified zone configuration. This command ends the current zoning transaction.

The specified zone configuration is built by checking for undefined zone names, zone alias names, or other inconsistencies by expanding zone aliases, removing duplicate entries, and then installing the effective configuration.

If the build fails, the previous state is preserved (zoning remains disabled, or the previous Effective configuration remains in effect). If the build succeeds, the new configuration replaces the previous configuration. See the `cfgShow` command for a description of defined and effective configurations.

This command ends and commits the current transaction. If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch is automatically aborted. A message is displayed on the other switch notifying the transaction abort.

For V3.1.x, this command changes the Effective Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command.

Note: This command requires an Advanced Zoning license.
When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operand:

`cfgName`	Specify the name of a zone configuration to enable in quotation marks. This operand is required.

Example

To enable the zone configuration "Test_cfg":

```
switch:admin> cfgEnable "Test_cfg"
zone config "Test_cfg" is in effect
```

See Also

cfgAdd
cfgClear
cfgCreate
cfgDelete
cfgDisable
cfgRemove
cfgSave
cfgShow
cfgTransAbort
cfgtransshow

cfgRemove

Remove a member from a zone configuration.

Synopsis

```
cfgRemove "cfgName","member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to remove one or more members from an existing zone configuration.

The member list is located by an exact string match, therefore, it is important to maintain the order when removing multiple members. For example, if a zone configuration contains “zone2; zone3; zone4” then removing “zone3; zone4” succeeds, but removing “zone4; zone3” fails.

If all members are removed, the zone configuration is deleted.

For V4.1.x, this command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgsave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgenable` command.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See “Security Commands” on page 941.

Operands

The following operands are required:

`cfgName`	Specify a name of a zone configuration, in quotation marks.
`member`	Specify one or more members to be deleted from the zone configuration, in quotation marks, separated by semicolons. Members can be specified in one or more of the following methods: ■ Zone names ■ QuickLoop names ■ FA (Fabric Assist) zone names This operand is required.

Example

To remove a zone from a configuration:

```
switch:admin> cfgRemove "Test_cfg", "redzone"
```

See Also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgSave

cfgShow

cfgTransAbort

cfgtransshow

cfgSave

Save zone configuration to non-volatile memory.

Synopsis

```
cfgSave
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to save the current zone configuration. The defined configuration and the name of the enabled configuration are written to non-volatile memory in all switches in the fabric.

The saved configuration is automatically reloaded by the switch on power up and, if a configuration was in effect at the time it was saved, the same configuration is reinstalled with an automatic `cfgEnable` command.

Because the saved configuration is reloaded at power on, only valid configurations are saved. The `cfgSave` command verifies that the enabled configuration is valid by performing the same tests as `cfgEnable`. If the tests fail, an error is displayed and the configuration is not saved. Tests may fail if a configuration has been modified since the last `cfgEnable`.

This command ends and commits the current transaction. If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch is automatically aborted. A message is displayed on the other switch notifying the transaction abort.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To enable a zone configuration, then save it:

```
switch:admin> cfgEnable "Test_cfg"
zone config "Test_cfg" is in effect
switch:admin> cfgSave
Updating flash...
```

See Also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgShow

cfgTransAbort

cfgtransshow

cfgShow

Displays zone configuration information.

Synopsis: V3.1.x

```
cfgShow ["pattern"]
```

Synopsis: V4.1.x

```
cfgShow ["pattern"][, mode]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display zone configuration information.

If no operand is specified, all zone configuration information (both Defined and Effective) is displayed.

If an operand is specified, it is used as a pattern to match zone configuration names in the defined configuration; those that match the pattern are displayed.

The Defined configuration is the complete set of all zone objects that have been defined in the fabric. There can be multiple zone configurations defined, but only one can be enabled at a time. There may be inconsistencies in the definitions, zones or aliases that are referenced but not defined, or there may be duplicate members. The Defined configuration is the current state of the administrator input.

The Effective configuration is the single zone configuration that is currently enabled. The devices that an initiator sees in the fabric are based on this configuration. The Effective configuration is built when a specific zone configuration is enabled and all error checking has been completed successfully.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operand:

pattern (V3.1.x only)	Specify a string of characters enclosed in quotation marks used to match zone configuration names. This operand must be in quotation marks. Patterns can contain: ■ Question mark "?" that matches any single character ■ Asterisk "*" that matches any string of characters ■ Ranges which match any character within the range. For example, [0-9] or [a-f]. This operand is optional.
pattern (V4.1.x only)	A POSIX style regular expression used to match zone configuration names. The pattern must be enclosed in quotation marks. Patterns may contain: ■ Question mark "?" that matches any single character ■ Asterisk "*" that matches any string of characters ■ Ranges which match any character within the range. For example, [0-9] or [a-f]. This operand is optional.
mode (V4.1.x only)	Specify 0 to display the contents of the transaction buffer (the contents of the current transaction), or specify 1 to display the contents of the non-volatile memory. The default value is 0. This operand is optional.

Example

To show all zone configuration configurations that start with "Test":

```
switch:admin> cfgShow "Test"
cfg:   Test1 Blue_zone
cfg:   Test_cfg Red_zone; Blue_zone
```

To show all zone configuration information:

```
switch:admin> cfgShow
Defined configuration:
  cfg:   USA1    Blue_zone
  cfg:   USA_cfg Red_zone; Blue_zone
  zone:  Blue_zone
     1,1; array1; 1,2; array2
  zone:  Red_zone
     1,0; loop1
  alias: array1  21:00:00:20:37:0c:76:8c; 21:00:00:20:37:0c:71:02
  alias: array2  21:00:00:20:37:0c:76:22; 21:00:00:20:37:0c:76:28
  alias: loop1   21:00:00:20:37:0c:76:85; 21:00:00:20:37:0c:71:df

Effective configuration:
  cfg:   USA_cfg
  zone:  Blue_zone
      1,1
      21:00:00:20:37:0c:76:8c
      21:00:00:20:37:0c:71:02
      1,2
      21:00:00:20:37:0c:76:22
      21:00:00:20:37:0c:76:28
   zone:  Red_zone
      1,0
      21:00:00:20:37:0c:76:85
      21:00:00:20:37:0c:71:df
```

To show only configuration names:

```
switch:admin> cfgshow *
cfg:   a_cfg1 zone1; zone2
cfg:   b_cfg2 zone1; zone2; zone3
switch:admin>
```

See Also

cfgAdd
cfgClear
cfgCreate
cfgDelete
cfgDisable
cfgEnable
cfgRemove
cfgSave
cfgTransAbort
cfgtransshow

cfgsize

Displays size details of the zone database.

Synopsis

```
cfgsize [integer]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the size details of the zone database.

The size details include the Zone DB max size, the committed size, and the transaction size. All sizes are in bytes.

The “Zone DB max size” is the upper limit for the Defined configuration, determined by the amount of flash memory available for storing the Defined configuration.

The “committed size” is the size of the Defined configuration currently stored in flash.

The “transaction size” is the size of the uncommitted Defined configuration. This value will be non-zero if the Defined configuration is being modified by programs such as telnet or API; otherwise it is 0.

See `cfgshow` for a description of Defined and Effective configurations.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See “Security Commands” on page 941.

Operands

This command has the following operand:

integer	If a non-zero integer is specified as the parameter, the size of the flash memory allocated for the zone database is displayed. The zone database includes both the Defined and Effective configurations. This size is in kilobytes. This operand is optional.

Example

To display size details of the Defined configuration:

```
switch:admin> cfgsize

Zone DB max size - 98232 bytes
       committed - 8812
     transaction - 0

switch:admin> cfgsize 1

Zone DB flash size - 96 KB
switch:admin>
```

See Also

cfgShow

cfgTransAbort

Abort the current zoning transaction.

Synopsis

```
cfgTransAbort
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to abort the current zoning transaction without committing it. All changes made since the transaction was started will be removed and the zone configuration database restored to the state before the transaction was started.

If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch remains open and unaffected.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

For V3.1.x: none.

For V4.1.x: this command has the following operand:

token	Specify the token ID of an abortable transaction. Use the `cfgtransshow` command to obtain the token ID of a transaction.

Example

To abort the current transaction:

```
switch:admin> cfgtransshow
Current transaction token is 271010736
It is abortable
switch:admin> cfgtransabort

Warning: Current Zoning Transaction was aborted. Reason code = User Command
switch:admin>
```

See Also

cfgAdd
cfgClear
cfgCreate
cfgDelete
cfgDisable
cfgEnable
cfgRemove
cfgSave
cfgShow
cfgtransshow

cfgtransshow

Displays information about current zoning transaction.

Synopsis

```
cfgtransshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to show the ID of the current zoning transaction. It will also give the information about whether the transaction can be aborted or not. The transaction can not be aborted if it is an internal zoning transaction.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To show the current transaction:

```
switch:admin> cfgtransshow
There is no outstanding zone transactions
switch:admin> cfgclear
Do you really want to clear all configurations?  (yes, y, no, n): [no] y
Clearing All zoning configurations...
switch:admin> cfgtransshow
Current transaction token is 271010736
It is abortable
switch:admin>
```

See Also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgTransAbort

chassisName

Displays or sets the chassis name for a StorageWorks Core switch.

Synopsis

```
chassisName [name]
```

Availability

All users (display).

Admin (set).

Release

V4.1.x

Description

Use this command to change the name associated with the chassis of a StorageWorks Core switch. In the StorageWorks Core switch there are two logical switches associated with a single chassis.

Enter this command with no parameter to display the current name.

Enter this command with a name specified to set the chassis name to the new value.

Operands

This command has the following operand:

name	Specify a new name for the chassis. Chassis names can be up to 16 characters long and must begin with a letter. The name must consist of letters, digits or underscore characters.

Example

The following command changes the chassis's name to “SW12K”:

```
switch:admin> chassisname
Silkworm12000
switch:admin> chassisname SW12K
switch:admin> chassisname
SW12K
switch:admin>
```

See Also

switchName

chassisShow

Displays all Field Replaceable Units (FRUs).

Synopsis

```
chassisShow
```

Availability

All users.

Release

V4.1.x

Description

Use this command to inventory and display the field replaceable unit (FRU) header content for each object in the chassis. On some platforms for certain FRU types, a few items may not be available. In these cases the lines will be suppressed. Possibly affected are lines 2, 3, 4, 5, 6, 8, and 10 through 13. In addition, for lines 10 through 13, if there is no data set, these lines will be suppressed.

The header data is formatted into a record consisting of (up to) 13 lines. The lines and their meaning are described below:

1. The first line of each record contains the object ID:

Object type:	CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (World Wide Name), or UNKNOWN; and
Object number:	Slot *<nn>* (for blades), Unit *<nn>* (for everything else).

   If the FRU is part of an assembly, a brief description in parentheses will be displayed.

2. This line displays the FRU header version number:

   ```
   Header Version:  <x>
   ```

3. This line displays the value used to calculate the object's power consumption, positive for power supplies, negative for consumers:

   `Power Consume Factor: <-xxx>`

4. This line displays the part number (up to 14 characters):

   `Part Num:  <xx-yyyyyyy-zz>`

5. This line displays the serial number (up to 12 characters):

   `Serial Num:  <xxxxxxxxxx>`

6. This line displays the date the FRU was manufactured:

   `Manufacture:  Day: <dd> Month: <mm> Year: <yyyy>`

7. This line displays the date the FRU header was last updated:

   `Update:  Day: <dd> Month: <mm> Year: <yyyy>`

8. This line displays the cumulative time, in days, that the FRU has been powered on:

   `Time Alive:  <dddd> days`

9. This line displays the current time, in days, since the FRU was last powered on:

   `Time Awake:  <ddd> days`

10. This line displays the externally supplied ID (up to 10 characters):

    `ID:  <xxxxxxxxxx>`

11. This line displays the externally supplied part number (up to 20 characters):

    `Part Num:  <xxxxxxxxxxxxxxxxxxxx>`

12. This line displays the externally supplied serial number (up to 20 characters):

    `Serial Num:  <xxxxxxxxxxxxxxxxxxxx>`

13. This line displays the externally supplied revision number (up to 4 characters):

    `Revision Num:  <xxxx>`

Operands

None.

Example

To displays all Field Replaceable Units for a switch:

```
switch12k:admin> chassisshow

SW BLADE  Slot: 3
Header Version:          1
Power Consume Factor:    -180
Brocade Part Num:        60-0001532-03
Brocade Serial Num:      1013456800
Manufacture:             Day: 12  Month:  6  Year: 2001
Update:                  Day: 15  Month:  7  Year: 2001
Time Alive:              28 days
Time Awake:              16 days
ID:                      555-374757q> to stop
Part Num:                234-294-12345
Serial Num:              2734658
Revision Num:            A.00

CP BLADE  Slot: 6
Header Version:          1
Power Consume Factor:    -40
Brocade Part Num:        60-0001604-02
Brocade Serial Num:      FP00X600128
Manufacture:             Day: 12  Month:  6  Year: 2001
Update:                  Day: 15  Month:  7  Year: 2001
Time Alive:              61 days
Time Awake:              16 days
ID:                      555-374757
Part Num:                236-296-12350
Serial Num:              2836542
Revision Num:            A.00

POWER SUPPLY  Unit: 2
Header Version:          1
Power Consume Factor:    1000
Brocade Part Num:        60-0001536-02to stop
Brocade Serial Num:      A013450700
Manufacture:             Day: 14  Month:  6  Year: 2001
Update:                  Day: 15  Month:  7  Year: 2001
Time Alive:              50 days
Time Awake:              16 days
ID:                      555-374757
Part Num:                238-298-12360
Serial Num:              1234567

<output truncated>
```

See Also

slotShow

chippropshow

Displays ASIC chip property contents.

Synopsis

`chippropshow` *`[slotnumber/]chip | [slotnumber] [all]`*

Availability

All users.

Release

V4.1.x

Description

Use this command to display the ASIC chip property contents for the specified chip on the specified blade slot.

Operands

This command has the following operands:

`slotnumber`	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required.
`chip`	Specify the index of the chip within the blade to be displayed. This operand is optional.
`-all`	Specify this operand to display the properties for all minis on the blade. This operand is optional.

Example

To view the chip properties on blade 2:

```
switch:admin> chippropshow 2 -all

Slot: 2 minis: 0 chip: 0
[1657/0001,0104,2/8]

Slot: 2 minis: 0 chip: 1
[1657/0001,0104,2/8]

Slot: 2 minis: 1 chip: 0
[1657/0001,0104,2/8]

Slot: 2 minis: 1 chip: 1
[1657/0001,0104,2/8]

Slot: 2 minis: 2 chip: 0
[1657/0001,0104,2/8]

Slot: 2 minis: 2 chip: 1
[1657/0001,0104,2/8]

Slot: 2 minis: 3 chip: 0
[1657/0001,0104,2/8]

Slot: 2 minis: 3 chip: 1
[1657/0001,0104,2/8]

switch:admin>
```

See Also

ptpropshow

chipregshow

Displays port registers of a given chip number.

Synopsis

`chipregshow` *`[slotnumber/]chip [filter]`*

Availability

All users.

Release

V4.1.x

Description

Use this command to display the ASIC register contents for the specified chip on the specified blade slot.

Operands

This command has the following operands:

`slotnumber`	Specify the slot number of the chip you want to test.
`chip`	Specify the index of the chip within the blade to be displayed.
`filter`	Specify a filter string.

Example

To display the port registers of chip 1 on blade 2:

```
switch:admin> chipregshow 2/1

Port Registers for Slot: 2 port: 8

0xca6ed000: chip_id         0104         0xca6ed002: port_config    0a38
0xca6ed004: did_vc_map      0800         0xca6ed008: int_mask       064f
0xca6ed00a: int_status      1020         0xca6ed00c: err_status     0002
0xca6ed00e: vc_config       00c0         0xca6fd010: buf_error      00000000
0xca6ed014: mem_bufline     00080008     0xca6ed018: mem_ctl        13c0
0xca6ed01a: mem_offset      0000         0xca6ed01c: port_ctl       0000
0xca6ed01e: quad_imask      c00f         0xca6ed020: port_addr      00041000
0xca6ed024: lli_status      00040000     0xca6ed028: lli_ctl        00081180
0xca6ed02c: lli_def         00000000     0xca6ed030: lli_mask       30020000
0xca6ed034: prescaler0      000a         0xca6ed036: tod0           011f
0xca6ed038: toc0            0007         0xca6ed03a: toc1           0000
0xca6ed03c: toc_ctl         0000         0xca6ed044: putq_stat      ffffffff
0xca6ed04c: flist_stat      0018037e     0xca6ed054: tolist_stat    ffffffff
0xca6ed05c: plist_stat      ffffffff     0xca6ed064: cflist_stat    000b037f
0xca6ed06c: aulist_stat     ffffffff     0xca6ed070: tfr_ctl        2000
0xca6ed072: tfr_status      2000         0xca6ed074: min_free       0000
0xca6ed076: available       01b4         0xca6ed078: cmi_st         00000000
0xca6ed07c: lli_flag        00000000     0xca6ed0a0: quad_istat     0000
0xca6ed0a2: quad_no         0002         0xca6ed0a4: led            0000
0xca6ed0a6: debug           0000         0xca6ed0aa: fbpc           0000
0xca6ed0ae: tcci            0000         0xca6ed0d0: fm_thrsh       255 15  1
0xca6ed0d8: holdoff_toc     0000         0xca6ed0da: holdoff_fc     0000
0xca6ed180: link_table_mask0fff          0xca6ef850: r2t_qctl       10bc0000
0xca6ef854: port2vc         07df0b1a     0xca6ef8a0: sharable_bufs  0066(102)
<output truncated>
```

See Also

chippropshow

ptregshow

cmemRetentionTest

Test the data retention of the central memory SRAMs.

Synopsis: V3.1.x

```
cmemRetentionTest [passcount]
```

Synopsis: V4.1.x

```
cmemretentiontest [--slot number][-passcnt count][-datatype
type][-ports itemlist][-seed value]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to verify data retention in the central memory SRAMs in the ASIC.

The method used is to write a fill pattern to all SRAMs, wait 10 seconds, and then read all SRAMs checking that data read should match data previously written. Repeat using the inverted version of the pattern. The patterns used are as follows:

```
1) 0xffffffff (and 0x00000000)
2) 0x55555555 (and 0xaaaaaaaa)
3) 0x33333333 (and 0xcccccccc)
4) 0x0f0f0f0f (and 0xf0f0f0f0)
5) QUAD_RAMP with a random seed value (and its invert)
```

Note: This command may not be executed on an enabled switch. You must first disable the switch using the `switchDisable` command.

Operands

This command has the following operands:

passcount (V3.1.x only)	Specify the number of times to execute this test. The default value is 1. This operand is optional.
--slot number (V4.1.x only)	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed port count products.
-passcnt count (V4.1.x only)	Specify the number of test passes to run. By default the test will be run one time.

-datatype type
(V4.1.x only)
	Specify the type of data pattern to use. By default, type 9, QUAD_RAMP is used. For a complete list of supported data patterns run the `datatypeshow` command. Some common settings are:
	`Pattern type example`
	`BYTE_FILL 1 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00`
	`WORD_FILL 2 0000 0000 0000 0000 0000 0000 0000 0000`
	`QUAD_FILL 3 00000000 00000000 00000000 00000000`
	`QUAD_RAMP 9 00000000 00000001 00000002 00000003`
	`RANDOM 11 55 16 fc d7 17 65 a9 87 5f 44 be 5a d0 de bc a5`

-ports itemlist (V4.1.x only)	Specify a set of ports to test. Specify a list of blade ports to test. The Ports list is translated into a matching quad list before the test is run. By default all the blade ports in the specified slot (*--slot*) are tested. See the `itemlist` help pages for further details.
-seed value (V4.1.x only)	Specify the data pattern seed to be used. The default seed value is 0.

Example

To run the data retention test on the central memory SRAMS:

```
switch:admin> cmemRetentionTest
Running CMEM Retention Test ... passed.
```

Errors

Listed below are possible error messages if failures are detected:

- For V3.1.x:

```
DIAG-LCMRS
DIAG-LCMTO
DIAG-LCMEM
```

- For V4.1.x:

```
LCMEM_ERR
LCMRS_ERR
LCMTO_ERR
```

See Also

camTest

centralMemoryTest

cmiTest

crossPortTest

datatypeshow

itemlist

portLoopbackTest

ramTest

spinSilk

sramRetentionTest

cmiTest

Verify the Control Message Interface (CMI) bus between ASICs.

Synopsis V3.1.x

```
cmitest [passcnt]
```

Synopsis V4.1.x

```
cmitest [--slot number][-passcnt count][-txports
list][-rxports list][-skip mask]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to verify that the multiplexed 4-bit CMI point-to-point connection between two ASICs is OK. It also verifies that a message sent with a bad checksum will set the error and interrupt status bits of the destination ASIC and that a message with a good checksum will not set any error or interrupt bit in any ASIC.

The CMI is used to send transmission requests or completion messages between the ACIC transmitter and receiver.

The test method is as follows.

1. For each destination ASIC X or Y in the switch, skip ASIC if X = Y.
2. Generate the CMI data D.
3. Send data from source X to destination Y.
4. Check that destination Y has its:
   - Capture flag set.
   - Data received is as expected (D).

- If a good checksum test, check that:
  - CMI error bit is not set.
  - CMI error interrupt status bit is not set.
- if a bad checksum test, check that:
  - CMI error bit is set.
  - CMI error interrupt status bit is set.

5. Check that all other ASICs (~Y) *do not* have its:
   - Capture flag set.
   - CMI error bit set.
   - CMI error interrupt status bit set.

Operands

This command has the following operands:

passcnt (V3.1.x only)	Specify the number of times to perform this test. The default value is 1. This operand is optional.
--slot number (V4.1.x only)	Specify the slot number to test. The default is set to 0 and designed to operate on fixed port count products.
-passcnt count (V4.1.x only)	Specify the number of test passes to run. By default the test will be run one time.
-txports list (V4.1.x only)	Specify a list of ports to transmit data. By default all the ports in the specified slot (*--slot number*) will be used. See `itemlist` help pages for further details. This operand is optional.
-rxports list (V4.1.x only)	Specify a list of ports to receive data. By default all the ports in the specified slot (*--slot number*) will be used. See `itemlist` help pages for further details.This operand is optional.
-skip mask (V4.1.x only)	Specify the particular test by using the following bit weight data: 1 CMI data test (ignore checksum) 2 CMI checksum test 3 Enable all tests This operand is optional.

Example

To run a CMI test between two ASICs in V3.1.x:

```
switch:admin> cmiTest
Running CMI Test .............. passed.
```

To run a CMI test between two ASICs in V4.1.x:

```
switch:admin> cmitest -txports 1/0-1/7 -rxports 1/8-1/15
Running CMI Test ..............Test Complete: "cmitest" Pass 1 of 1
Duration 0 hr, 0 min & 2 sec (0:0:2:563).
passed.
```

Errors

When it detects failures, the subtest may report one or more of the following error messages:

- For V3.1.x:

  ```
  DIAG-CMISA1
  DIAG-CMINOCAP
  DIAG-CMICKSUM
  DIAG-CMIINVCAP
  DIAG-CMIDATA
  DIAG-INTNIL
  DIAG-BADINT
  ```

- For V4.1.x:

  ```
  DIAG-BADINT
  DIAG-CMICKSUM
  DIAG-CMIDATA
  DIAG-CMIINVCAP
  DIAG-CMINOCAP
  DIAG-CMISA1
  DIAG-INTNIL
  ```

See Also

camtest
centralmemorytest
cmemretentiontest
crossporttest
itemlist
portloopbacktest
portregtest
ramtest
spinsilk
sramretentiontest

configDefault

Reset a subset of configuration settings to the default values.

Synopsis

```
configDefault
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to reset certain configuration settings to the default values.

All configuration parameters, with the following exceptions, are reset to default values:

- Ethernet MAC address, IP address, and subnetmask
- IP gateway address
- License keys
- OEM customization
- SNMP configuration
- System name
- World Wide Name
- Advanced Zoning configuration

Note: See the `configure` command for more information on default values for configuration parameters.

The `configDefault` command may not be executed on an enabled switch. You must first disable the switch using the `switchDisable` command.

Some configuration parameters are cached by the system. To avoid unexpected switch behavior, reboot the system after executing this command.

Operands

None.

Example

To restore the system configuration to default values:

```
switch:admin> configDefault
Committing Configuration ...done.
```

See Also

agtcfgDefault

configure

switchDisable

switchEnable

configDownload

Download the switch configuration file from a host system.

Synopsis

```
configDownload ["host","user","file","passwd"]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to load the switch configuration file from a host system. The configuration file is ASCII text and may have been generated using `configUpload`, or it may have been created by a user to download specific configuration changes. The download process uses FTP or Remote Shell Server (RSHD).

Note: V3.1.x supports FTP and RSHD protocol for configuration downloads. RSHD does not require the `passwd` operand. FTP always requires the `passwd` operand. V4.1.x only supports FTP. No spaces are allowed between operands.

To restore the configuration file from a Microsoft® Windows NT® system using FTP, the FTP server may have to be installed from the distribution media and enabled.

This command can be invoked without any operands, and becomes an interactive session where you are prompted for input.

A switch's identity cannot be changed by `configDownload`. These parameters (such as the switch's name and IP address) are ignored.

The download process is additive; that is, the lines read from the file are added to the current switch configuration. This enables you to change a single configuration variable by downloading a file with a single line. All other variables

remain unchanged. This is particularly important when downloading a zoning configuration. Since the new zoning information is added to the current configuration, there may not be any conflicts. Typically this command is used to add a consistent change to the current zoning configuration, or to replace the current zoning configuration, in which case `cfgClear` must be invoked before `configDownload`.

Operands

This command has the following operands:

host	Specify a host name or IP address in quotation marks; for example, "citadel" or "11.22.33.44." The configuration file is downloaded from this host system. This operand is optional.
user	Specify a user name in quotation marks; for example, "jdoe." This user name is used to gain access to the host system. This operand is optional.
file	Specify a file name in quotation marks; for example, "*config.txt*." Absolute path names may be specified using forward slash (/). Relative path names search for the file in the user's home directory on UNIX® hosts, and in the directory where the FTP server is running on Windows® hosts. This operand is optional.
passwd	Specify a password in quotation marks. This operand is optional.

Example

To load a backup configuration file from a host system in V3.1.x:

```
switch:admin> configdownload
Server Name or IP Address [host]: 11.22.33.44
User Name [user]: johndoe
File Name [config.txt]:
Protocol (RSHD or FTP) [rshd]: FTP
Password: xxxxxxx
switch:admin>
```

To load a backup configuration file from a host system in V4.1.x:

```
switch:admin> configdownload "123.123.123.123","jdoe","config.txt",
“password1”
Committing configuration...done.
download complete
```

If you enter the command with no operands, you are prompted for the appropriate valuesin V4.1.x:

```
switch:admin> configdownload
Server Name or IP Address [host]: 11.22.33.44
User Name [None]: user21
File Name [config.txt]: config-switch.txt
Password: xxxxxxxxx
download complete
switch:admin>
```

Errors

Listed below are possible reasons for a failure of this command:

- The host name is not known to the switch
- The host IP address cannot be contacted
- The user does not have permission on the host
- The user runs a script that prints something at login
- The file does not exist on the host
- The file is not a switch configuration file
- The FTP server is not running on the host
- The configuration data contains errors.

See Also

configDefault

configUpload

configShow

configure

configShow

Displays system configuration settings.

Synopsis

```
configShow ["filter"]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to view the system configuration settings set by the `configure` command.

Operands

This command has the following operand:

`filter`	Specify a text string in quotation marks that limits the output of the command to only those entries that contain the text string. This operand is optional.

Example

To display system configuration settings:

```
switch:admin> configshow
Ethernet addresses: 0:60:69:c0:e:88

Nvram datadata: fei(0,0)host:/usr/switch/firmware e=10.32.225.190:
fffff000 g=10.
32.224.1 u=user tn=switch

Type <CR> to continue, Q<CR> to stop:
diag.postDisable:       0
fabric.domain:  14
fabric.ops.BBCredit:    5
fabric.ops.E_D_TOV:     2000
fabric.ops.R_A_TOV:     10000
fabric.ops.dataFieldSize:       2112
fabric.ops.max_hops:    7
fabric.ops.mode.SeqSwitching:   0
fabric.ops.mode.fcpProbeDisable:        0
fabric.ops.mode.isolate:        0
fabric.ops.mode.longDistance:   0
fabric.ops.mode.noClassF:       0
fabric.ops.mode.pidFormat:      1
fabric.ops.mode.sync:   0
fabric.ops.mode.unicastOnly:    0
fabric.ops.mode.useCsCtl:       0
fabric.ops.mode.vcEncode:       0
fabric.ops.vc.class.2:  2
fabric.ops.vc.class.3:  3
fabric.ops.vc.config:   0xc0
fabric.ops.vc.linkCtrl: 0
fabric.ops.vc.multicast:        7
fabric.ops.wan_rtt_dly_max:     200

Type <CR> to continue, Q<CR> to stop:
```

Note: Configuration parameters vary depending on system model and configuration.

See Also

agtcfgShow
configure
diagDisablePost
diagEnablePost
ipAddrShow
licenseShow
syslogdIpShow

configUpload

Create a backup file of switch configuration information on a host workstation.

Synopsis

```
configUpload ["host","user","file"[,"passwd"]]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to upload the switch configuration to a host file. The upload process uses FTP or RSHD.

If the command is entered without operands, it becomes interactive and prompts the user for input.

The configuration file is written as three sections. The first section contains the switch boot parameters. It has variables such as the switch's name and IP address. This section corresponds to the first few lines of output of the `configShow` command.

The second section contains general switch configuration variables, such as diagnostic settings, fabric configuration settings, and SNMP settings. This section corresponds to the output of the `configShow` command (after the first few lines), although there are more lines uploaded than shown by the command.

The third section contains the zoning configuration parameters.

Note: V3.1.x supports FTP and RSHD protocol for configuration uploads. RSHD does not require the `passwd` operand.

In V4.1.x, no spaces are allowed between operands.

Operands

This command has the following operands:

host	Specify a host name or IP address in quotation marks; for example, "citadel" or "11.22.33.44." The configuration file is downloaded from this host system. This operand is optional.
user	Specify a user name in quotation marks; for example, "jdoe." This user name is used to gain access to the host. This operand is optional.
file	Specify a file name in quotation marks; for example, "*config.txt*." Absolute path names may be specified using forward slash (/). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts. This operand is optional.
passwd	Specify a password in quotation marks. This operand is optional.

Example

To create a backup file of switch configuration information:

```
swd5:admin> configUpload "citadel","jdoe","config.txt","passwd"
upload complete
switch:admin>
```

If you enter the command with no operands, you are prompted for the appropriate values:

```
switch:admin> configUpload
Server Name or IP Address [host]: 11.22.33.44
User Name [None]: user21
File Name [config.txt]: config-switch.txt
Password: xxxxxx
upload complete
switch:admin>
```

Errors

Listed below are possible reasons for a failure of this command:

- The host name is not known to the switch
- The host IP address cannot be contacted

- The user does not have permission on the host
- The user runs a script that prints something at login
- The FTP server is not running on the host

See Also

configDefault
configDownload
configShow
configure

configure

Modify system configuration settings.

Synopsis

```
configure
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to change the following system configuration settings:

- Fabric parameters
- Virtual channel settings
- Zoning operation parameters
- RSCN transmission mode
- NS pre-zoning mode
- Arbitrated Loop parameters
- System services
- Portlog events enable

Note: For V3.1.x, *do not* run this command on an operational switch. First disable the switch using the `switchDisable` command.

For V4.1.x, this command can now be executed on an enabled switch. If executed on an enabled switch only a subset of the full parameter set is available. To access all parameters controlled by this command, you must disable the switch.

The `configure` command is navigated using a series of menus. Top level menus and associated submenus consist of a text prompt, a list of acceptable values, and a default value (in brackets).

Use the following options to control input:

Return	When entered at a prompt with no preceding input, accepts the default value (if applicable) and moves to the next prompt.
Interrupt (Ctrl-C)	Aborts the command immediately and ignores all changes made. This keystroke is common on many computers, but can be different on your system.
End-of-file (Ctrl-D)	When entered at a prompt with no preceding input, terminates the command and saves changes made. This keystroke is common on many computers, but may be different on your system.

Fabric Parameters

There are a number of settings which control the overall behavior and operation of the Fabric. Some of these values, such as the domain, are assigned automatically by the Fabric and may differ from one switch to another in the fabric. Other parameters, such as the BB credit, can be changed for specific applications or operating environments, but *must be in agreement* among all switches to allow formation of the fabric.

The Fabric parameters are as follows:

Table 2: Configure Command Fabric Parameters

Field	Default	Range
Domain	1	1..239
BB Credit	16	V3.1.x = 1 to 27 V4.1.x = 1 to 16
R_A_TOV	10000	4000..120000
E_D_TOV	2000	1000 to 5000
Data Field Size	2112	256 to 2112
Sequence Level Switching	0	0 or 1
Disable Device Probing	0	0 or 1
Suppress Class F Traffic	0	0 or 1
Sync IO Mode (V3.1.x only)	0	0 or 1

Table 2: Configure Command Fabric Parameters (Continued)

Field	Default	Range
VC Encoded Address Mode	0	0 or 1
Core Switch PID Format (V3.1.x only)	0	0 or 1
Per-frame Route Priority	0	0 or 1
Long Distance Fabric	0	0 or 1

Descriptions of the switch fabric setting fields are as follows:

Domain — The domain number uniquely identifies the switch in a fabric. This value is automatically assigned by the fabric. The range of valid values varies depending on the switch model and other system parameter settings (*see* VC Encoded Address Mode).

BB Credit — The buffer-to-buffer (BB) credit represents the number of buffers available to attached devices for frame receipt. The range of allowed values varies depending on other system settings.

R_A_TOV — The Resource Allocation Time Out Value (R_A_TOV) is displayed in milliseconds. This variable works with the variable E_D_TOV to determine switch actions when presented with an error condition.

Allocated circuit resources with detected errors are not released until the time value has expired. If the condition is resolved prior to the time out, the internal time out clock resets and waits for the next error condition.

E_D_TOV — Error Detect Time Out Value (E_D_TOV) is displayed in milliseconds. This timer is used to flag a potential error condition when an expected response is not received (an acknowledgment or reply in response to packet receipt, for example) within the set time limit. If the time for an expected response exceeds the set value, then an error condition occurs.

Data Field Size — The data field size specifies the largest possible value, in bytes, and advertises this value to other switches in the fabric during construction of the fabric as well as to other devices when they connect to the fabric. Setting this to a value smaller than 2112 may result in decreased performance.

Sequence Level Switching

When Sequence Level Switching is set to 1, frames of the same sequence from a particular source are transmitted together as a group. When this feature is set to 0, frames are transmitted interleaved among multiple sequences.

Under normal conditions, Sequence Level Switching should be disabled for better performance. However, some host adapters have performance issues when receiving interleaved frames from multiple sequences. When there are such devices attached to the fabric, Sequence Level Switching should be enabled.

Disable Device Probing

When Disable Device Probing is set to 1, devices that do not register with the Name Server are not present in the Name Server data base. Set this mode only if the switch N_Port discovery process (PLOGI, PRLI, INQUIRY) causes an attached device to fail.

Disable RLS Probing

When RLS Probing is not selected (enabled or "0"), the switch port will issue RLS Extended Link Service to the attached devices every four seconds to collect link status data. Otherwise, RLS will not be sent to the devices. RLS Probing is selected by default (disabled or "1").

Suppress Class F Traffic

When this mode is set to 1, all class F interswitch frames are transmitted as class 2 frames. This is to support remote fabrics which involve ATM gateways which don't support class F traffic.

Sync IO Mode
(V3.1.x only)

When Sync IO mode is set to 1, FSPF frames are sent in synchronous mode (expecting ACKs back from the other side for every frame) which helps in detecting the failures in the link between the ATM gateways in remote fabrics.

VC Encoded Address Mode

When VC Encoded Address Mode is set to 1, frame source and destination address utilize an address format compatible with StorageWorks SAN switches. Set this mode only if the fabric includes this type of switch.

Note: For V4.1.x, the VC Encoded Address Mode parameter can only be modified from the Primary FCS when security is installed and enabled. See "Security Commands" on page 941.

Core Switch PID Format (V3.1.x only)	This is used to set the 256 port PID format that is used for core switches. This option enables single Domain port density higher than 16. VC Encoded Address Mode and Core Switch PID Format are mutually exclusive. They cannot both be enabled at the same time. All switches in the fabric must have this parameter set the same.
Per-frame Route Priority	In addition to the eight virtual channels used in frame routing priority, support is also available for per-frame based prioritization when this value is set. When Per-frame Route Priority is set to 1, the virtual channel ID is used in conjunction with a frame header to form the final virtual channel ID.
Long Distance Fabric	When this mode is set to 1, ISLs in a fabric can be up to 100Km long. The exact distance level is determined by the per-port configuration on the E_Ports of each ISL. Both E_Ports in an ISL must be configured to run the same long distance level, otherwise, the fabric will be segmented. The Extended Fabric License is required to set this mode.

Virtual Channel Settings

The switch enables fine tuning for a specific application, by configuring the parameters for eight virtual channels. The first two virtual channels are reserved for switch internal functions and are not available for modification.

The default virtual channel settings have already been optimized for switch performance. Changing the default values can improve switch performance, but can also degrade performance. Do not change these settings without fully understanding the effects of the changes.

The Virtual Channel Setting fields are as follows:

Table 3: Configure Command Virtual Channel Settings

Field	Default	Range
VC Priority 2	2	2 to 3
VC Priority 3	2	2 to 3
VC Priority 4	2	2 to 3
VC Priority 5	2	2 to 3
VC Priority 6	3	2 to 3
VC Priority 7	3	2 to 3

:A description of the Virtual Channel Setting field follows:

VC Priority	Specifies the class of frame traffic given priority for a Virtual Channel.

Zoning Operation Parameters

The Zoning Operation Parameter field is as follows:

Disable NodeName Zone Checking	Specify 1 to disable using Node WWN when specifying nodes in the zone database, or specify 0 to enable using Node WWN when specifying nodes in the zone data. The default value is 0.

RSCN Transmission Mode

The RSCN Transmission Mode field is as follows:

End-device RSCN Transmission Mode — Specify 0 for RSCN with single PID, 1 for RSCN with multiple PIDs, or 2 fabric RSCN. The default value is 0.

NS Operation Parameters

The NS Pre-zoning Mode field is as follows:

Pre-zoned Responses Mode — Specify 0 for Standard Mode, or 1 for Pre-zoning On. The default value is 0.

Arbitrated Loop Parameters

The Arbitrated Loop Setting fields are as follows:

Table 4: Configure Command Arbitrated Loop Settings

Field	Default	Range
Alternate BB Credit? (V4.1.x only)	0	0 or 1
Send FAN frames?	1	0 or 1
Enable CLOSE on OPEN received?	0	0 or 1
Always send RSCN?	1	0 or 1
Do Not Allow AL_PA 0x00?	0	0 or 1
Initialize All Looplets? (V3.1.x only)	0	0 or 1

Descriptions of the Arbitrated Loop Parameter fields are as follows:

Send FAN frames? — Specifies that fabric address notification (FAN) frames be sent to public loop devices to notify them of their node ID and address. When set to 1, frames are sent; when set to 0, frames are not sent.

Enable CLOSE on OPEN received? — If this is set, a CLS is returned immediately to an OPN if no buffers are available. This is required for TachLite.

Always send RSCN? — Following the completion of loop initialization, a remote state change notification (RSCN) is issued when FL_Ports detect the presence of new devices or the absence of pre-existing devices. When set, a RSCN is issued upon completion of loop initialization, regardless of the presence or absence of new or preexisting devices.

Do Not Allow AL_PA 0x00? — This option disallows AL_PA values from being 0.

Initialize All Looplets? (V3.1.x only) — When this is set, all looplets including the ones not in the same zone are always re-initialized. This is required for certain RAID subsystems to work properly during failover.

System Services

The System Services fields are as follows:

Table 5: Configure Command System Services Parameters

Field	Default	Range
rstatd	Off	On/Off
rusersd	Off	On/Off
telnetd (V4.1.x only)	On	On/Off
rapid	On	On/Off
thad	On	On/Off
Disable RLS probing	On	On/Off

Descriptions of the system service setting fields are as follows:

rstatd — Dynamically enables or disables a server that returns information about system operation information through remote procedure calls (RPC). The protocol provides for a wide-range of system statistics.

The retrieval of this information is supported by a number of operating systems which support RPC. Most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) use the rup and rsysinfo commands to retrieve the information. See your local system documentation for the appropriate usage of the these or equivalent commands.

rusersd	Dynamically enables or disables a server that returns information about the user logged into the system through remote procedure calls (RPC). The information returned includes user login name, the system name, login protocol or type, login time, idle time, and remote login location (if applicable). The retrieval of this information is supported by a number of operating systems which support RPC. On most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) the command to retrieve the information is rusers. See your local system documentation for the appropriate usage of this or equivalent command.
telnetd (V4.1.x only)	Used to enable or disable the telnet interface to a switch. If you are using SSH to manage a switch you can disable the telnet interface for greater security. The default value is on (telnet is enabled).
rapid	Dynamically enables or disables a service that handles RPC requests for the API server. The default value is on.
thad	Dynamically enables or disables the threshold monitor. The default value is on.
Disable RLS probing	This disables Read Link Error Status probing of the AL_PAs. The default value is on, that is Disable RLS probing is disabled.

Portlog Events Enable

Use these parameters to specify which events create an entry in the port log. The Portlog Events fields are as follows:

Table 6: Configure Command Portlog Events Parameters

Field	Default	Range
start: a switch start or re-start event	On	On/Off
disable: a port is disabled	On	On/Off
enable: a port is enabled	On	On/Off
ioctl: a port I/O control is executed	On	On/Off
Tx: a frame is transmitted	On	On/Off
Tx1: a frame is transmitted, class 1	On	On/Off
Tx2: a frame is transmitted, class 2	On	On/Off
Tx3: a frame is transmitted, class 3	On	On/Off

Table 6: Configure Command Portlog Events Parameters (Continued)

Field	Default	Range
Rx: a frame is received	On	On/Off
Rx1: a frame is received, class 1	On	On/Off
Rx2: a frame is received, class 2	On	On/Off
Rx3: a frame is received, class 3	On	On/Off
stats: port status or statistics	On	On/Off
scn: a state change notification	On	On/Off
pstate: a port changes physical state	On	On/Off
reject: a received frame is rejected	On	On/Off
busy: a received frame is busied	On	On/Off
ctin: a CT based request is received	On	On/Off
ctout: a CT based response is transmitted	On	On/Off
errlog: a message is added to the error log	On	On/Off
loopscn: a loop state change notification	On	On/Off
create: a task is created	On	On/Off
debug: generic debug info	On	On/Off
nbrfsm: neighbor state transition	On	On/Off
timer: timer	On	On/Off
sn: speed negotiation state	On	On/Off
fcin: Fibre Channel input (V4.1.x only)	On	On/Off
fcout: Fibre Channel ouput (V4.1.x only)	On	On/Off
read: Fibre Channel read (V4.1.x only)	On	On/Off
write: Fibre Channel write (V4.1.x only)	On	On/Off
err: Fibre Channel error (V4.1.x only)	On	On/Off
frame: Fibre Channel frame payload (V4.1.x only)	On	On/Off
msRemQ: inter-sw MS query (V4.1.x only)	On	On/Off

Table 6: Configure Command Portlog Events Parameters (Continued)

Field	Default	Range
msRemR: inter-sw MS response (V4.1.x only)	On	On/Off
nsRemQ: inter-sw NS query	On	On/Off
nsRemR: inter-sw NS response	On	On/Off
rscn: RSCN	On	On/Off
state: Fibre Channel state (V4.1.x only)	On	On/Off
xalloc: alloc an exchange (V4.1.x only)	On	On/Off
xfree: free an exchange (V4.1.x only)	On	On/Off
xerr: exchange error (V4.1.x only)	On	On/Off
xstate: exchange state (V4.1.x only)	On	On/Off
seq: sequence (V4.1.x only)	On	On/Off
seqst: sequence state (V4.1.x only)	On	On/Off
iu: iu (V4.1.x only)	On	On/Off
payload: frame payload (V4.1.x only)	On	On/Off
reconf: fabric reconfiguration (V3.1.x only)	On	On/Off
LR1: LR2 (V3.1.x only)	On	On/Off
zone: zone requrest/response (V4.1.x only)	On	On/Off
cmd: fss command log (V4.1.x only)	On	On/Off
event fss event log (V4.1.x only)	On	On/Off
msg: fss message log (V4.1.x only)	On	On/Off

Operands

None.

Example

To set the configuration parameters for a switch:

```
switch:admin> configure
Configure...

  Fabric parameters (yes, y, no, n): [no] yes

    Domain: (1..239) [1]
    R_A_TOV: (4000..120000) [10000]
    E_D_TOV: (1000..5000) [2000] 5000
    Data field size: (256..2112) [2112]
    Sequence Level Switching: (0..1) [0]
    Disable Device Probing: (0..1) [0]
    Suppress Class F Traffic: (0..1) [0] 1
    SYNC IO mode: (0..1) [0]
    VC Encoded Address Mode: (0..1) [0] 1
    Core Switch PID Format: (0..1) [0]
    Per-frame Route Priority: (0..1) [0]
    Long Distance Fabric: (0..1) [0]
    BB credit: (1..27) [16]


  Virtual Channel parameters (yes, y, no, n): [no] yes

    VC Priority 2: (2..3) [2]
    VC Priority 3: (2..3) [2]
    VC Priority 4: (2..3) [2]
    VC Priority 5: (2..3) [2]
    VC Priority 6: (2..3) [3]

  Switch Operating Mode (yes, y, no, n): [no] n
  Zoning Operation parameters (yes, y, no, n): [no] n
  RSCN Transmission Mode (yes, y, no, n): [no] n
  Arbitrated Loop parameters (yes, y, no, n): [no] n
  System services (yes, y, no, n): [no] n
  Portlog events enable (yes, y, no, n): [no] n
Committing configuration...done.
switch:admin>
```

See Also

configDefault
configShow
ifShow
ipAddrSet
syslogdIp
syslogdipshow

crossPortTest

Functional test of port external transmit and receive path.

Synopsis: V3.1.x

```
crossporttest [passcount, singleportalso]
```

Synopsis: V4.1.x

```
crossporttest [--slot number][-nframes count][-lb_mode
mode][-spd_mode mode][-gbic_mode mode] [-norestore
mode][-ports itemlist]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to verify the functional operation of the switch. This command verifies operation by sending frames from a port M's transmitter and looping the frames back through an external fiber cable into another port N's receiver. This exercises all of the switch components from the main board to the SFP, from the SFP to the fiber cable, from the fiber cable to the SFP, and from the SFP back to the main board.

With the lb_mode operand set to 1 it is also possible to test ports with loopback plugs that connect each port back to itself.

The cables can be connected to any port combination as long as the cables and SFPs connected are of the same technology. For example, a short wavelength SFP port is connected to another short wavelength SFP port using a short wavelength cable, or a long wavelength port is connected to another long wavelength port, and a copper port is connected to a copper port.

For complete testing, ports connected should be from different ASICs.

Only one frame is transmitted and received at a given time. The port LEDs flicker green rapidly while the test is running.

The test method is as follows:

1. Determine which ports are connected to each other.
2. Enable ports for cabled loopback mode.
3. Create a frame F of maximum data size (2112 bytes).
4. Transmit frame F via port M.
5. Pick up the frame from its cross connected port N. Complain if port other than N actually received the frame.
6. Check if any of the 8 statistic error counters are non-zero: ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet, DiscC3.
7. Check if the transmit, receive or class 3 receiver counters are stuck at some value.
8. Check if the number of frames transmitted is not equal to the number of frames received.
9. Repeat steps 3 through 8 for all ports present until:
    a. The number of frames requested is reached
    b. All ports are marked bad

At each pass, the frame is created from a different data type. There are seven data types:

```
1)   CSPAT:       0x7e, 0x7e, 0x7e, 0x7e,...
2)   BYTE_LFSR:   0x69, 0x01, 0x02, 0x05,...
3)   CHALF_SQ:    0x4a, 0x4a, 0x4a, 0x4a,...
4)   QUAD_NOT:    0x00, 0xff, 0x00, 0xff,...
5)   CQTR_SQ:     0x78, 0x78, 0x78, 0x78,...
6)   CRPAT:       0xbc, 0xbc, 0x23, 0x47,...
7)   RANDOM:      0x25, 0x7f, 0x6e, 0x9a,...
```

If seven passes are requested, the seven different data types are used in the test. If eight passes are requested, the first seven frames use unique data types, and the eighth is the same as the first.

Note: The `crossPortTest` command behaves differently according to the modes activated.

V3.1.x: SwitchEnable and SwitchDisabled Mode / V4.1.x: SwitchOnline and SwitchOffline Mode

The `crossPortTest` command can be executed when the switch is enabled/online or disabled/offline.

In SwitchEnabled/SwitchOnline mode (where the switch is enabled prior to executing the `crossPortTest` command) only ports which are cable loopbacked to ports in the same switch are tested. Ports connected outside of the switch are ignored.

To run the `crossPortTest` command successfully the test must find at least one port (lb_mode = 1, this is the default) or two ports (lb_mode = 0) cable loopbacked to each other. If this criteria is not met, one of the following messages is displayed:

```
Need at least one port(s) connected to run this test
Need at least two port(s) cross-connected to run this test
```

In SwitchDisabled/SwitchOffline mode (when the switch is disabled prior to executing the `crossPortTest` command) all ports are assumed to be cable loopbacked to different ports in the same switch. If one or more ports are not connected, the test aborts.

The test determines which port is connected to which port transmitting frames. If any ports are not properly connected (improperly seated SFPs or cables, bad SFPs or cables, or improper connection or improper connection of SWL to LWL), the following message is displayed:

```
One or more ports is not active, please double check fibres on
all ports.
```

V3.1.x: singlePortAlso Mode

The `singlePortAlso` mode is specified by executing `crossporttest` command with the `singleportalso` operand specified as a value of 1. For example:

```
switch:admin> crossporttest 100, 1
```

In this mode, `crossporttest` enables a port to be cable loopbacked to itself (port M is connected to port M) in addition to the cross connection supported (port M is connected to port N). This can be used to isolate bad ports.

V3.1.x: SFP Mode

Use the `setgbicmode` command (`setGBICMode`) to activate SFP mode by executing the following command prior to executing the `crossPortTest` command:

```
switch:admin> setgbicmode 1
```

When activated, only ports with SFPs present are tested by the `crossporttest` command. For example, if only port 0 and port 3 contain SFPs and the SFP mode is activated, the `crossporttest` command limits testing to port 0 and 3.

The state of SFP mode is saved in non-volatile memory and remains active after reboots or power cycles until it is disabled as follows:

```
switch:admin> setSFPMode 0
```

V4.1.x: SFP Mode

Use the `setafpmode` command (`setsfpmode`) to activate SFP mode by executing the following command prior to executing the `crossPortTest` command:

```
switch:admin> setsfpmode 1
```

When activated, only ports with SFPs present are tested by the `crossporttest` command. For example, if only port 0 and port 3 contain SFPs and the SFP mode is activated, the `crossporttest` command limits testing to port 0 and 3.

The state of SFP mode is saved in non-volatile memory and remains active after reboots or power cycles until it is disabled as follows:

```
switch:admin> setsfpmode 0
```

V4.1.x: Example Operation

An example mode of operation would be to disable the switch, set the GBIC mode to 1, and execute crossporttest with -lb_mode 1 activated and the `crossporttest` would then limit its testing to:

- Only ports which are stuffed with media, and
- Ports with media which are properly cable looped back, and
- Ports are allowed to be connected to itself (single port connections).

Since this test includes the media and the fiber cable in its test path, its results combined with the results of portloopbacktest and spinsilk can be used to determine which components of the switch are faulty. It is also possible to use various loopback modes 3 and 5 to further isolate failures, see to -lb_mode below.

Operands

This command has the following operands:

passnum (V3.1.x only)	Specify the number of frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10, so the number of frames sent will be at least 10.
singleportalso (V3.1.x only)	Specify 1 to enable singleportalso mode. This enables the command to test ports that are cable loopbacked (port M is connected to port M) in addition to the cross connection ports (port M is connected to port N).
--slot number (V4.1.x only)	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number. The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are switch cards. On each switch card, there are 16 ports counted from the bottom, 0 to 15. A particular port must be represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). This operand is not required for switches that do not have slots.
-nframes count (V4.1.x only)	Specify the number of frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10, so the number of frames sent will be at least 10.

-lb_mode mode
(V4.1.x only)

Select the loopback point for the test. By default, `crossporttest` uses cable loopback as described above. However for debug purposes you can select other loopback modes as follows:

0 Cable Loopback.

1 Port Loopback (loopback plugs).

2 External (series) loopback.

3 Silkscreen loopback.

4 Serial link wrapback.

5 Internal (parallel) loopback.

-spd_mode mode
(V4.1.x only)

Select the speed mode for the test. This parameter is only used for 2-Gbps capable products where it controls the speed at which each port is operated.

For 1-Gbps only products it is ignored. The exact operation of modes 3-6 depends upon the loopback mode selected. When speed modes 3-6 are used with cables, they must be connected even to odd or the test will fail.

0 - set all ports' speed for auto-negotiate

1 - set all ports' speed to lock at 1 Gbps

2 - set all port's speed to lock at 2 Gbps

For -lb_mode set to 0, one of the following speed modes are available to test the speed negotiation:

3 - set all even ports speed for AN, set all odd ports speed for 1 Gbps.

4 - set all even ports' speed for AN, set all odd ports' speed for 2 Gbps.

5 - set all odd ports' speed for AN, set all even ports' speed for 1 Gbps.

6 - set all odd ports' speed for AN, set all even ports' speed for 2 Gbpsc.

For -lb_mode set to 2, the following speed modes are available to test FIFO underrun:

3,5 - set all even ports' speed for 2 Gbps, set all odd ports' speed for 1-Gbps.

4,6 - set all even ports' speed for 1 Gbps, set all odd ports' speed for 2 Gbps

-gbic_mode mode (V4.1.x only)	The gbic_mode parameter may be used to override the global GBIC mode described above for the duration of this test. Specify 1 enable gbic_mode, and the testing is limited to user ports with GBICs or SFPs installed.
-norestore mode (V4.1.x only)	Specify 1 to force the test to skip part of the post-test cleanup normally performed. This may be helpful during debug. This parameter should normally be left at the default value of 0.
-ports itemlist (V4.1.x only)	Specify a list of user ports to test. By default all of the user ports in the current switch or logical switch will be tested. This option may be used to restrict testing to the specified ports.

Example

To execute a functional test of all the ports on a switch 100 times:

```
switch:admin> crossporttest 100, 1

Running Cross Port Test .......
One moment please ...
switchName:        switch
switchType:        2.2
switchState:       Testing
switchRole:        Disabled
switchDomain:      1 (unconfirmed)
switchId:  fffc01
switchWwn: 10:00:00:60:69:00:73:71
port  0: cu  Testing    Loopback->15
port  1: sw  Testing    Loopback->11
port  2: sw  Testing    Loopback->6
port  3: lw  Testing    Loopback->4
port  4: lw  Testing    Loopback->3
port  5: sw  Testing    Loopback->8
port  6: sw  Testing    Loopback->2
port  7: sw  Testing    Loopback->12
port  8: sw  Testing    Loopback->5
port  9: sw  Testing    Loopback->14
port 10: sw  Testing    Loopback->13
port 11: sw  Testing    Loopback->1
port 12: sw  Testing    Loopback->7
port 13: sw  Testing    Loopback->10
port 14: sw  Testing    Loopback->9
port 15: cu  Testing    Loopback->0
Passed.
switch:admin>
```

Errors

Below are possible error messages if failures are detected:

- For V3.1.x:

```
DIAG-INIT
DIAG-PORTDIED
DIAG-XMIT
DIAG-TIMEOUT
DIAG-ERRSTAT
DIAG-STATS
DIAG-PORTWRONG
DIAG-DATA
```

- For V4.1.x:

```
DATA
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
FTPRT_STATUS_ERR
INIT
LESSN_STATUS_ERR
MBUF_STATE_ERR
MBUF_STATUS_ERR
NO_SEGMENT
PORT_ABSENT
PORT_DIED
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_FRAME_ERR
RXQ_RAM_PERR
STATS
STATS_C3FRX
STATS_FRX
```

```
STATS_FTX
TIMEOUT
XMIT
```

See Also

camTest

centralmemorytest

cmemretentiontest

emitest

portLoopbackTest

portRegTest

ramTest

spinSilk

sramRetentionTest

dataTypeShow

Displays sample data stream types used in some diagnostic commands.

Synopsis: V3.1.x

```
dataTypeShow
```

Synopsis: V4.1.x

```
dataTypeShow [-seed value]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Displays sample data streams types used in diagnostic commands. There are 19 different sample data types. The command displays an example of each data stream.

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operand:

-seed value	Specify the data pattern seed value. If no seed is specified, then a seed value of 0 is used.

Example

Displays the types of sample data streams you can use with diagnostics:

```
switch:admin> datatypeshow

Pattern      type   example

Byte Fill     1     00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Word Fill     2     0000  0000  0000  0000  0000  0000  0000  0000
Quad Fill     3     00000000     00000000     00000000     00000000
Byte Not      4     00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff
Word Not      5     0000  ffff  0000  ffff  0000  ffff  0000  ffff
Quad Not      6     00000000     ffffffff     00000000     ffffffff
Byte Ramp     7     00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f
Word Ramp     8     0000  0001  0002  0003  0004  0005  0006  0007
Quad Ramp     9     00000000     00000001     00000002     00000003
Byte LFSR    10     69 01 02 05 0b 17 2f 5e bd 7b f6 ec d8 b0 60 c0
Random       11     62 39 29 18 08 01 e8 d9 c9 ba aa 9b 8b 84 94 a5
CRPAT        12     bc bc 23 47 6b 8f b3 d7 fb 14 36 59 bc bc 23 47
CSPAT        13     7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e
CHALF_SQ     14     4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a
CQTR_SQ      15     78 78 78 78 78 78 78 78 78 78 78 78 78 78 78 78
RDRAM_PAT    16     ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00
jCRPAT       17     be d7 23 47 6b 8f b3 14 5e fb 35 59 be d7 23 47
jCJTPAT      18     7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e
jCSPAT       19     7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f
switch:admin>
```

See Also

centralMemoryTest

date

Displays or sets the switch date and time.

Synopsis

`date ["newDate"]`

Availability

All users (display) .

Admin (set).

Release

V3.1.x and V4.1.x

Description

Use this command to set the date and time for a switch (unless security mode is enabled). All switches maintain the current date and time in non-volatile memory. If the Security feature (Secure Mode) is not enabled, switch operation does not depend on the date and time. A switch with incorrect date values continues to function properly. The date and time are only used to recording events in the various logs, for example, the error log and the port log.

In order to enable Secure Mode the fabric must be synchronized. Every switch in the fabric must receive a fabric timestamp from the Primary FCS switch.

Use this command with no operands to display the local switch date and time. Use the *newdate* operand to set the date and time.

This command sets the a common date and time for the entire fabric. If Secure Mode is not enabled, a change in date or time to one switch is forwarded to the Principal switch and distributed to the fabric. If Secure Mode is enabled, date or time changes can be made only on the Primary FCS switch and distributed to the fabric.

Note: This command becomes read only if external NTP synchronization is enabled. For more information, see `tsclockserver`.

It may take up to 64 seconds for the switches in the fabric to be synchronized.

The date specified is always the local switch time taking into account daylight saving time and the time zone setup of the switch. Each switch takes care of converting the GMT time distributed fabric-wide to its local time.

Date and time are specified as a string in the format:

"mmddhhmmyy"

where:

mm is the month, valid values are 01-12
dd is the date, valid values are 01-31
hh is the hour, valid values are 00-23
mm is minutes, valid values are 00-59
yy is the year, valid values are 00-99

Year values greater than 69 are interpreted as 1970-1999, year values less than 70 are interpreted as 2000-2069.

The date function does not support daylight saving time or time zones.

All switches maintain current date and time in non-volatile memory. Date and time are used for logging events. Switch operation does not depend on the date and time; a switch with an incorrect date value still functions properly.

Operands

This command has the following operand:

newDate	Specify the new date and time in quotation marks. This operand is optional.

Example

To display the current date and time, then change it to Feb 27 12:30:00 2003:

```
switch:admin> date
Fri Jan 29 17:01:48 1999
switch:admin> date "0227123003"
Thu Feb 27 12:30:00 2003
```

See Also

errLogShow
portLogShow
tsclockserver
tstimezone
uptime

dbgshow

Displays current values of debug and verbosity levels of the specified module.

Synopsis

`dbgshow` *`module_name`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display the current values of debug and verbosity levels of the specified module. If no module name is specified, display debug and verbosity levels of all modules.

Operands

This command has the following operand:

`module_name`	Specify the name of the module where you want to view the debug and verbosity levels. Module names are case sensitive. This operand is optional.

Example

The following example shows how to use `dbgshow` to display information about a specific module named NS:

```
switch:admin> dbgshow TRUNK
Module TRUNK,    debug level = 0, verbose level = 0
switch:admin> dbgshow NS
Module NS,       debug level = 1, verbose level = 1
switch:admin>
```

See Also

setdbg

diagClearError

Clear the `diag` software flag to allow for retest.

Synopsis: V3.1.x

`diagclearerror` *`[port]`*

Synopsis: V4.1.x

`diagclearerror` *`[[-slot] slot][-switch switch] | -all`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to clear the diagnostic software flag that indicates whether a port is BAD or OK. The current flag settings are displayed by using the `diagShow` command. This command resets the flag to allow the bad port to be retested; otherwise the test skips the port.

This command does not clear the error log entry. Instead, it generates the following `DIAG-CLEAR_ERR` message for each port software flag cleared. For example, the following message is for a sample message displayed in the error cleared log when you clear and error for a port 3:

```
0x10f9d560 (tShell): Apr 9 08:35:50
Error DIAG-CLEAR_ERR, 3,
Pt13 (Lm3) Diagnostics Error Cleared
Err# 0001
```

Operands

This command has the following operands:

port (V3.1.x only)	Specify the port where you want to clear diagnostic error messages. This operand is optional.
-slot slot (V4.1.x only)	Specify the slot to clear the diagnostic failure status. This operand is optional.
-switch switch (V4.1.x only)	Specify the logical switch number to operate on. If omitted, then all blades will be cleared. This operand is optional.
-all (V4.1.x only)	If specified, all blades will be cleared.

If no operand is specified, the default is to clear all bad port flags.

Example

To clear the **diag** software flag:

```
switch:admin> > diagclearerror 1
0x1bcb (fabos):  Switch: 0, Error DIAG-CLEARERR, 3,
Pt5 Sl1 Ch0 Qd1 Diagnostics Error Cleared
Err# 0120041 0105
```

See Also

diagShow

diagCommandShow

Displays a list of diagnostic commands.

Synopsis

```
diagCommandShow
```

Availability

Admin

Release

V4.1.x

Description

Use this command to display a list of diagnostic commands.

Operands

None.

Example

To display a list of diagnostic commands:

```
switch:admin> diagcommandshow

diagCommandShow - Display diagnostics command parameter and error info.

To show the parameters for a diagnostic test enter:

diagCommandShow -name <test_name>

LIST OF DIAGNOSTIC COMMANDS WITH DESCRIPTION:
diagmodeshow            Display diagnostic burnin controls
statsclear              Clear statistics counters
diagclearerror          Clear diagnostics errors
diagshow                Display diagnostics status of ports
diagcommandshow         Display diagnostics help info
diaghelp                Display diagnostics help info
diagstatus              Display info about running diagnostics
diagreset               Clear errors and reset blades
diagoktorun             Check to see if it is ok to run diagnostics
datatypeshow            Display available data patterns
portregtest             Port register diagnostic
mulregdump              Dump the contents of the general purpose registers
ramdump                 Dump the contents of specified RAM register or all
sramretentiontest       SRAM Data Retention diagnostic
spinsilk                Cross-connected line-speed exerciser
spinjitter              line-speed jitter measurement
crossporttest           Cross-connected port diagnostic
portloopbacktest        Port internal loopback diagnostic
txdpath                 Miniswitch TX data path diagnostic
spinfab                 circulates frames between live switches
backport                backplane routing and VC allocation test
centralmemorytest       Central memory diagnostic
cmemretentiontest       Central Mem Data Retention diagnostic
cmitest                 CMI bus connection diagnostic
camtest                 Quickloop CAM diagnostic
turboramtest            Turbo speed asic SRAM diagnostic
statstest               Statistics counter diagnostic
portledtest             User Ports LED exerciser
filtertest              Frame filter diagnostic
backplanetest           Backplane connection diagnostic

switch:admin>
```

See Also

None.

diagDisablePost

Disable POST execution at reboot.

Synopsis

`diagDisablePost`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to disable Power On Self Test (POST) execution at switch reboot. This mode is saved in non-volatile memory and POST remains disabled until it is enabled using the `diagEnablePost` command. A reboot is not required for this command to take effect.

A switch rebooted without POST enabled issues the following `DIAG-POSTSKIPPED` error message:

```
0x10fc0c10 (tSwitch): Apr 6 13:24:42
Error DIAG-POST_SKIPPED, 3,
Skipped POST tests: assuming all ports are healthy,
Err# 0004
```

It is recommended that POST always be enabled to ensure the operational status of the switch during the power on stage.

Operands

None.

Example

To disable the POST execution at reboot:

```
switch:admin> diagdisablepost
Committing configuration...done.
On next reboot, POST will be skipped.
switch:admin>
```

See Also

diaghelp

diagEnablePost

diagEnablePost

Enable POST execution at next reboot.

Synopsis

```
diagEnablePost
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable POST execution at the next switch reboot. This mode is saved in non-volatile memory and POST remains enabled until it is disabled using the `diagDisablePost` command.

POST executed after a cold boot (a power cycle of the switch) runs longer than POST executed after warm boot (executing `reboot` on a powered up switch). The cold boot POST runs more data patterns during the `ramtest`.

Diagnostic POST divides into two separate phases, POST Phase I and POST Phase II. POST Phase I mainly tests hardware soundness and POST Phase II tests system functionality.

A reboot is not required for this command to take effect.

The following tests are executed during POST:

1. ramtest
2. portregtest
3. centralmemorytest
4. cmitest
5. camtest
6. portloopbacktest

It is recommended that POST always be enabled to ensure the operational status of the switch during the power on stage. The factory default enables POST execution.

Operands

None.

Example

To enable the POST during future power ups:

```
switch:admin> diagenablepost
Committing configuration...done.
On next reboot, POST will be executed.
switch:admin>
```

See Also

camtest

centralmemorytest

cmitest

diaghelp

diagDisablePost

ramtest

portloopbacktest

portregtest

diagesdports

Set ESD skip ports list.

Synopsis

`diagesdports [itemlist | -show]`

Availability

Admin

Release

V4.1.x

Description

Use this command to set the ESD IDLE PORTS list. The list is saved in non-volatile memory and stays in that mode until the next execution of `diagesdports`.

The ESD IDLE ports are used by several of the functional test methods to disable testing on the specified list of ports when ESD mode is enabled (see `setesdmode`). The exact type of port list and the exact use of this list are determined by each test method.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Operands

This command has the following operands:

itemlist	Specify the range of ports to be set to ESD idle. For proper syntax, see itemlist help page.
-show	Specify this operand to display ESD idle ports list. This operand is optional.

Example

To add ports 1 through 3 to the ESD Idle port list:

```
switch:admin> diagesdports 1-3
ESD Idle Port list is now 1-3.
Config update Succeeded
switch:admin> diagesdports -show
ESD Idle Port list is 1-3.
```

See Also

diaghelp

diagfaillimit

Set diagnostics fail limit to a specified value.

Synopsis

```
diagfaillimit [limit | -show]
```

Availability

Admin

Release

V4.1.x

Description

Use this command to set the diagnostics fail limit to a specified value. The fail limit controls the number of failures before certain diagnostics test methods will abort. The normal setting is 1 so that the tests will abort on the first failure. The exact use of this configuration setting depends on the test method. The new fail limit mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Operands

This command has the following operands:

limit	Specify the number of failures before a diagnostic test aborts. The limit value must be 1 or greater. This operand is optional.
-show	Specify this operand to display the current fail limit setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To change the fail limit from 1 to 5:

```
switch:admin> diagfaillimit
Fail Limit is 1.
switch:admin> diagfaillimit 5
Fail Limit is now 5.
Config update Succeeded
switch:admin>
```

See Also

diaghelp

diagHelp

Displays diagnostic command information.

Synopsis: V3.1.x

```
diagHelp
```

Synopsis: V4.1.x

```
diagHelp [-name command]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display diagnostic command information.

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operand:

-name command	Specify a command name to display more detailed information. This operand displays a parameter list, and subtest information and diagnostic error codes if available.

Example

To display information about diagnostic commands:

```
switch:admin> diagHelp

ramTest                 System DRAM diagnostic
portRegTest             Port register diagnostic
centralMemoryTest       Central memory diagnostic
cmiTest                 CMI bus connection diagnostic
camTest                 Quickloop CAM diagnostic
statsTest               Statistics counter diagnostic
filterTest              Frame Filtering Test
portLoopbackTest        Port internal loopback diagnostic
sramRetentionTest       SRAM Data Retention diagnostic
turboRamTest            ASIC built in Turbo RAM Test
cmemRetentionTest       Central Mem Data Retention diagnostic
crossPortTest           Cross-connected port diagnostic
txdPathTest             TXA, TXD connection diagnostic
spinSilk                Cross-connected line-speed exerciser
diagClearError          Clear diag error on specified port
diagDisablePost         Disable Power-On-Self-Test
diagEnablePost          Enable Power-On-Self-Test
setGbicMode             Enable tests only on ports with GBICs
setSplbMode             Enable 0=Dual, 1=Single port LB mode
supportShow             Print version, error, portLog, etc.
diagShow                Print diagnostic status information
parityCheck             Dram Parity 0=Disabled, 1=Enable
spinFab                 ISL link diagnostic.
loopPortTest            L-Port cable loopback diagnostic
fPortTest               F-Port cable diagnostic
portTest                Start portTest
stopPortTest            Stop portTest
portTestShow            Get current portTest snapshot information

switch:admin>
```

See Also

None.

diagloopid

Set the diagnostics loop ID.

Synopsis

```
diagloopid [id | -show]
```

Availability

Admin

Release

V4.1.x

Description

Use this command to select the loop ID to be used by FL mode diagnostics. The value entered will be converted from a loop ID to the corresponding AL_PA and used as the port address for any diagnostics that operate in FL port mode.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Operands

This command has the following operands:

id	Specify the loop Id for FL mode diagnostics. This operand is optional.
-show	Specify this operand to display the current loop ID. This operand is optional.

If no operand is specified the current value is displayed.

Example

To change the loop id from 125 to 120:

```
switch:admin> diagloopid
FL mode Loop ID is 125.
switch:admin> diagloopid 120
FL mode Loop ID is now 120.
Config update Succeeded
switch:admin>
```

See Also

diaghelp

diagmodepr

Enable or disable mode messages.

Synopsis

`diagmodepr` *[mode | -show]*

Availability

Admin

Release

V4.1.x

Description

Use this command to enable print mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of `diagmodepr`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Print mode, when enabled, will cause extra messages to be displayed in the burn-in and post scripts. The exact behavior varies depending on the script being run.

Operands

This command has the following operands:

mode	Specify 1 to enable print mode, specify 0 to disable print mode. This operand is optional.
-show	Specify this operand to display the current mode. This operand is optional.

If no operand is specified the current value is displayed.

Example

To enable print mode messages:

```
switch:admin> diagmodepr -show
Diagnostic Print Mode is currently disabled.
switch:admin> diagmodepr 1
Config update Succeeded
Diagnostic Print Mode is now enabled.
switch:admin>
```

See Also

diaghelp

diagpost

Enable or disable POST testing.

Synopsis

```
diagpost [mode | -show]
```

Availability

Admin

Release

V4.1.x

Description

Use this command to enable or disable POST testing. The mode is saved in non-volatile memory and stays in that mode until the next execution of `diagpost`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Post mode modifies the behavior of the diagnostics daemon program to inhibit testing of switch blades when the system is first powered on or a new blade is added.

Operands

This command has the following operands:

mode	Specify 1 to enable POST test, specify 0 to disable POST test. This operand is optional.
-show	Specify this operand to display the current mode. This operand is optional.

If no operand is specified the current value is displayed.

Example

To enable and then disable the POST test:

```
switch:admin> diagpost 1
Config update Succeeded
Post disable is now 0 (Enabled).
san95:admin> diagpost 0
Config update Succeeded
Post disable is now 1 (Disabled).
```

See Also

diagdisablepost

diagenablepost

diagretry

Enable or disable retry mode.

Synopsis

`diagretry` *[mode | -show]*

Availability

Admin

Release

V4.1.x

Description

Use this command to enable or disable retry mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of `diagretry`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Retry mode, when enabled, modifies the behavior of the diagnostic test methods, POST, and burn-in scripts. The exact behavior depends on the tests and scripts that are run, but the most common result is that `spinsilk` tests are skipped when retry mode is enabled.

Operands

This command has the following operands:

mode	Specify 1 to enable retry mode, specify 0 to disable retry mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To view the current retry mode value:

```
switch:admin> diagretry -show
Diagnostic Retry Mode is currently disabled.
switch:admin> diagretry 1
Config update Succeeded
Diagnostic Retry Mode is now enabled.
switch:admin>
```

See Also

diaghelp

diagsetburnin

Initializes the blade for a burn-in run.

Synopsis

`diagsetburnin` *`[--slot slotnumber][script | -current]`*

Availability

Admin

Release

V4.1.x

Description

This sets up the blade burnin parameters for the registered burnin script. The name of burnin script can be set with `burninname` command alternatively. The burnin will start at the next run of POST on the designated blades.

The errors and activity logs are stored in non-volatile memory. The activity log of the script is saved in `/var/log/`*`scriptname.slot.log`*. The errors produced are available from `burninerrshow` command on a per blade basis. When power cycles occur, the burnin activity is restarted at the test that was interrupted at the time of the power cycle. This command does not require a reboot to take effect.

Operands

This command has the following operands:

`--slot slotnumber`	Specify which slot number to to update. If this option is not specified at all, then all slots on the switch are setup for burnin.
`script`	Specify the name of the burnin script to run.
`-current`	Set the name of burnin script to current burnin script.

Example

To view the current burn-in settings for a switch:

```
switch:admin> diagsetburnin --slot 1 -current
existing script is: /fabos/share/switchess.sh
Burnin mode is Enabled.
Removing all log files in /var/log for slot 1
Slot 1 burnin name is now /fabos/share/switchess.sh
Config update Succeeded
switch:admin>
```

See Also

diagsetcycle

diagstopburnin

diagsetcycle

Set diagnostic script parameters.

Synopsis

```
diagSetCycle script [-show | -default | [-keyword value]]
```

Availability

Admin

Release

V4.1.x

Description

This command provides interactive way of updating diagnostic command parameters. With only script specified, it will display all configuration variables used by the specified script and go into an interactive session. Using the full stretched option parameters, variables can be updated non interactively too.

In interactive mode, the current value, default value, and description of purpose of the variable are displayed for each variable. If no new value is specified, then the current value is left unchanged. If a new value is entered, then its value is updated, and stored in the configuration database for that blade type. It does not require a reboot to take effect.

Operands

This command has the following operands:

script	Specify which script's parameters to edit.
-show	Specify this operand to display the parameters for a diagnostic script specified by script.
-default	Specify this operand to set the script parameters to default values.

-keyword value	The script parameters can be updated non-interactively using this style of option list. keyword is the keyword to update and the value should be specified manually in this case.

Example

To view the parameters for a script:

```
switch:admin> diagsetcycle switchburnin.sh -show
     CURRENT - KEYWORD        : DEFAULT
      1      - number_of_runs : 1
      2      - vib            : 2
      10     - thermal        : 10
      BURNIN - label          : BURNIN
      1      - tbr_passes     : 1
      1      - prt_on         : 1
      1      - cntmem_on      : 1
      1      - cmi_on         : 1
      1      - cam_on         : 1
      50     - flt_passes     : 50
      25     - sta_passes     : 25
      100    - plb_nframes    : 100
      50     - txd_nframes    : 50
      200    - xpt_nframes    : 200
      20     - bpt_nframes    : 20
      50     - slk_nmegs      : 50
      30     - bpt_all_nframes: 30
      50     - slk_all_nmegs  : 50
switch:admin>
```

See Also

None.

diagshow

Displays diagnostics status.

Synopsis: V3.1.x

```
diagshow [nSeconds]
```

Synopsis: V4.1.x

```
diagshow [--slot slotnumber][-uports itemlist][-bports
itemlist][-use_bports value]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

For V3.1.x, use this command to display the diagnostics status for switch was last rebooted.

For V4.1.x, use this command to display the diagnostics status for the specified list of blade or user ports.

The following information is displayed:

- The state of all ports in the switch based on the results of diagnostic executions since the last reboot. Ports which passed diag testing are marked OK. Ports which failed one or more diag tests are marked BAD.
- The current state of the ports: active ports are shown as UP and inactive ports are shown as DN.
- The frame counts of active ports. The number of frames transmitted are indicated by “frTx” and the number of frames received are indicated by “frRx.” The “LLI_errs” is the sum of the port’s 8 statistic error counters:

  ```
  ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out,
  BadOrdSet, DiscC3
  ```

- The state of the Central Memory based on the results of diagnostic executions since the last reboot. OK is displayed if previous `centralmemorytest` executions passed. FAULTY is displayed if the switch failed `centralmemorytest`.
- The total diagnostic frames transmitted and received since last reboot.

  The sums represent the cumulative number of frames transmitted and received by the diagnostic functional tests (`portloopbacktest`, `crossporttest`, or `spinsilk` for the transmitted count only) for all ports since the last reboot.

  For example, if the switch is rebooted with POST disabled, **diagshow** will show the total as 0. The values are not necessarily equal. They are not equal when an error occurs in one of the ports during one of the tests above.

This command may also be looped by specifying the `nSeconds` operand. For example, `diagshow 4` executes `diagshow` every 4 seconds continuously until stopped by a keyboard interrupt. This may be used to isolate a bad SFP. A port with changing "LLI_errs" value prefixed by "**" indicates port is detecting more errors.

Operands

This command has the following operands:

nSeconds (V3.1.x only)	Specify the display interval (in seconds) between repeated executions of `diagShow`. The default value if no operand is specified or operand value is 0 is to print the information once only. This operand is optional.
--slot slotnumber (V4.1.x only)	Specify the slot to display. If no slot is specified this command executes on all slots in the logical switch. This operand is optional.
-uports itemlist (V4.1.x only)	Specify a list of user ports to display. This operand is optional.
-bports itemlist (V4.1.x only)	Specify a list of blade ports to display. This operand is optional.
-use_bports value (V4.1.x only)	If value is set to none zero, then the diagnostics status for the blade ports specified in *use_bports* will be displayed, otherwise the UI ports specified in *-uports* is displayed. The default value is 0. This operand is optional.

Example

V4.1.x example to display diagnostic status on switch blade 7:

```
switch:admin> diagshow

Diagnostics Status:  Fri Feb 08 15:25:24 2002
Slot: 1 UPORTS
Port     BPort    Diag     Active   Speed     ......
 0        15       OK         UP     2G Auto   ......
 1        14       OK         UP     2G Auto   ......
 2        13       OK         UP     2G Auto   ......
 3        12       OK         UP     2G Auto   ......
 4        31       OK         UP     2G Auto   ......
 5        30       OK         UP     2G Auto   ......
 6        29       OK         UP     2G Auto   ......
 7        28       OK         UP     2G Auto   ......
 8        47       OK         UP     2G Auto   ......
--- <output truncated> ---
```

See Also

diaghelp

diagshowtime

Enable or disable elapsed time messages.

Synopsis

`diagshowtime` *[mode | -show]*

Availability

Admin

Release

V4.1.x

Description

Use this command to enable or disable show time mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of `diagshowtime`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Displays the time mode, when enabled, causes each test to display elapsed time messages. It is normally used during burn-in and for test method debug.

Operands

This command has the following operands:

mode	Specify 1 to enable show time mode, specify 0 to disable show time mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To enable show time mode:

```
switch:admin> diagshowtime
Show Time mode is 0 (Disabled).
switch:admin> diagshowtime 1
Config update Succeeded
Show Time mode is now 1 (Enabled).
switch:admin>
```

See Also

diaghelp

diagsilkworm

Enable or disable silkworm mode.

Synopsis

`diagsilkworm` *[mode | -show]*

Availability

Admin

Release

V4.1.x

Description

Use this command to enable or disable silkworm mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of `diagsilkworm`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Silkworm mode, when enabled, notifies the diagnostics environment and test methods that the tests are running in silkworm mode. For proper operation FCSW mode must also be disabled.

Caution: This mode may not be used by burn-in or POST scripts for multi-bladed products because it is a switch-wide configuration.

Operands

This command has the following operands:

`mode`	Specify 1 to enable silkworm mode, specify 0 to disable silkworm mode. This operand is optional.
`-show`	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To enable silkworm mode:

```
switch:admin> diagsilkworm
Silkworm mode is 0 (Disabled).
switch:admin> diagsilkworm 1
Config update Succeeded
Silkworm mode is now 1 (Enabled).
san95:admin>
```

See Also

diaghelp

diagskiptests

Enable or disable diagnostics skip test flags.

Synopsis

`diagskiptests` *[value | -show]*

Availability

Admin

Release

V4.1.x

Description

Use this command to enable or disable the diagnostics skip test flags. The skip test flags are saved in non-volatile memory and stay set until the next execution of `diagskiptests`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The skip test flags are used to skip the execution of certain POST tests that may prove hazardous to normal switch operation. The exact use of this flag is determined by the post scripts and the specific test methods that are used.

Operands

This command has the following operands:

value	Specify a bit mask for tests to be skipped.
-show	If specified or no value is given, the current skip test flags will be displayed.

If no operand is specified the current value is displayed.

Example

The following is an example of the `diagskiptests` command:

```
switch:admin> diagskiptests -show
Skip tests is 0.
switch:admin> diagskiptests 1
Config update Succeeded
Skip tests is now 1.
switch:admin>
```

See Also

diaghelp

diagstopburnin

Terminate a blade burn-in run.

Synopsis

`diagstopburnin` *`[-slot slot]`*

Availability

Admin

Release

V4.1.x

Description

Use this command to determine which PID is running burn-in on a blade and terminate that activity. It is expected that the burn-in script handles the logging cleanup.

This command does not require a reboot to take effect.

Operands

This command has the following operand:

`-slot slot`	Specify the slot to stop burn-in. If no slot is specified this command executes on all slots in the logical switch. This operand is optional.

Example

To stop burn-in mode on a switch:

```
switch:admin> diagstopburnin --slot 1
No burnin script active on slot 1
1 burninErrShow output:
0x1eea (fabos): Dec 19 14:42:18
Switch: 0, Error DIAG-MANUAL1, 1, " 1 Starting switchess ...
Err# 0140042 0100:101:000:001:24:37:

0xc84 (fabos): Dec 20 08:57:27
Switch: 0, Error DIAG-MANUAL1, 1, " 1 switchess: ABORT   ...
Err# 0140042 0100:101:000:000:25:41:

0x1b61 (fabos): Feb 07 19:02:28
Switch: 0, Error DIAG-MANUAL1, 1, " 1 Starting switchess ...
Err# 0140042 0100:101:000:001:26:39:

0x47ff (fabos): Feb 07 21:45:36
Switch: 0, Error DIAG-MANUAL1, 1, " 1 switchess: ABORT   ...
Err# 0140042 0100:101:000:002:26:41:1N
switch:admin>
```

See Also

diaghelp

diagsetburnin

dlsReset

Disable Dynamic Load Sharing (DLS) option.

Synopsis

```
dlsReset
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to turn off Dynamic Load Sharing (DLS) when a fabric change occurs. Refer to `dlsset` for a full description of load sharing.

Routing is generally based on the incoming port and the destination domain. This means that all the traffic coming in from a port (either E_Port or Fx_Port) directed to the same remote domain is routed through the same output E_Port.

To optimize fabric routing, when there are multiple equivalent paths to a remote switch, traffic is shared among all the paths. Load sharing is recomputed when a switch is booted up or every time a change in the fabric occurs. A change in the fabric is defined as an E_Port going up or down, or an Fx_Port going up or down.

If DLS is turned off (using `dlsReset`), load sharing is performed only at boot time or when an Fx_Port comes up. Optimal load sharing is rarely achieved with DLS disabled.

If DLS is turned on (using `dlsSet`), routing changes can affect working ports. For example, if an Fx_Port goes down, another Fx_Port may be rerouted from one E_Port to a different E_Port. The switch minimizes the number of routing changes, but some are necessary in order to achieve optimal load sharing.

These changes can further affect the performance of the fabric if the in-order delivery (IOD) option is on. With the IOD option (see the `iodSet` command), routes are not available for a few seconds after a fabric change. The time needed to reset the fabric routing varies based on the size of the fabric. Some frame loss may occur because as the fabric is recalculating routes, frames are dropped to avoid

being delivered out of order. No frame loss occurs if IOD is off, but there is still a short period of time when traffic is not forwarded. This period of time is significantly shorter than when IOD is on, and is usually less than 1 second.

Use this command only if devices connected to the fabric cannot handle occasional routing changes.

Operands

None.

Examples

To disable the dynamic load sharing option:

```
switch:admin> dlsReset
Committing configuration...done.
switch:admin> dlsShow
DLS is not set
switch:admin>
```

See Also

dlsSet

dlsShow

dlsSet

Enable Dynamic Load Sharing (DLS) option.

Synopsis

`dlsSet`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to turn on DLS when a fabric change occurs.

Routing is generally based on the incoming port and the destination domain. This means that all the traffic coming in from a port (either E_Port or Fx_Port) directed to the same remote domain is routed through the same output E_Port.

To optimize fabric routing, when there are multiple equivalent paths to a remote switch, traffic is shared among all the paths. Load sharing is recomputed when a switch is booted up or every time a change in the fabric occurs. A change in the fabric is defined as an E_Port going up or down, or an Fx_Port going up or down.

If DLS is turned off (using `dlsReset`), load sharing is performed only at boot time or when an Fx_Port comes up. Optimal load sharing is rarely achieved with DLS disabled.

If DLS is turned on (using `dlsSet`), routing changes can affect working ports. For example, if an Fx_Port goes down, another Fx_Port may be rerouted from one E_Port to a different E_Port. The switch minimizes the number of routing changes, but some are necessary in order to achieve optimal load sharing.

These changes can further affect the performance of the fabric if the in-order delivery (IOD) option is on. With the IOD option (see the `iodSet` command), routes are not available for a few seconds after a fabric change. The time needed to reset the fabric routing varies based on the size of the fabric. Some frame loss may occur because as the fabric is recalculating routes, frames are dropped to avoid

being delivered out of order. No frame loss occurs if IOD is off, but there is still a short period of time when traffic is not forwarded. This period of time is significantly shorter than when IOD is on, and is usually less than 1 second.

Operands

None.

Examples

To enable the dynamic load sharing option:.

```
switch:admin> dlsSet
Committing configuration...done.
switch:admin> dlsShow
DLS is set
switch:admin>
```

See Also

dlsReset

dlsShow

dlsShow

Displays the setting of the DLS option.

Synopsis

```
dlsShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display whether DLS is on or off. There can be two messages displayed:

`DLS is set`	The DLS option is turned on. Load sharing is reconfigured with every change in the fabric.
`DLS is not set`	The DLS option is turned off. Load sharing is only reconfigured when the switch is rebooted or an Fx_Port comes up.

Operands

None.

Example

To display the current DLS option setting:

```
switch:admin> dlsShow
DLS is set
```

See Also

dlsSet

dlsReset

dnsconfig

Set or display Domain name service parameters.

Synopsis

```
dnsconfig
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display or set the domain name service parameters.

The domain name service parameters are namely domain name and the name server IP address for primary and secondary name servers.

Operands

None.

Example

To set the DNS parameters for the system:

```
switch:admin> dnsconfig
Enter option
1 to display current Domain Name Service configuration
2 to set  DNS configuration
Enter choice:2
Enter Domain Name : [(none)] mydomain.com
Enter nameserver IP address in dot notation: [] 11.22.33.44
Enter nameserver IP address in dot notation: [] 11.22.33.45
DNS parameters saved successfully
switch:admin>
```

See Also

ipaddrset

ipaddrshow

errClear

Clear the switch error log.

Synopsis: V3.1.x

```
errClear
```

Synopsis: V4.1.x

```
errClear [-p]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to clear the error log for a particular switch instance. If no operand is specified, this command clears the error log in RAM; The persistent error log is not cleared. However, if *-p* option is specified, ONLY the persistent error log is cleared and the error log in RAM is not cleared.

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operand:

-p	Clear messages ONLY from the persistent error log. Error log in RAM is not cleared.

Example

The following example shows how to clear the error log:

```
switch:admin> errclear
0x102ed690 (tShell): Nov 22 15:09:38
INFO SYS-LOGCLRD, 4, Error log cleared

switch:admin>
```

To clear the persistent error log on the Active CP using V4.1.x, use the *-p* operand.

See Also

errDump

errNvLogSizeSet

errNvLogSizeShow

errShow

errDump

Displays the error log without page breaks.

Synopsis: V3.1.x

```
errDump
```

Syntax: V4.1.x

```
errDump [-a][-p]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display the error log; the entries in the log are displayed without any page breaks. It is identical to `errshow`, except that `errshow` prompts the user to type return between each log entry.

The output of the `errdump` command includes the display of errors/events history recorded in the persistent error log and error/events logged in the current run time cycle. This command also provides options to display ONLY those error/event messages that are saved in the persistent error log, or ONLY those messages generated during the current run time cycle.

All important error log messages, regardless of their message severity level, are stored in a persistent storage as they are logged. Both the persistent error log and the run time log are limited in space and managed as circular buffers. When either log overflows, old entries are replaced by new entries.

The persistent error log is saved across system reboots and power cycles and can be resized at run time.

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operands:

-a	Displays messages from the active error log. This displays the error log messages generated during the current run time cycle.
-p	Displays messages from the persistent error log.

Example

To display the error log without page breaks:

```
switch:switch:admin> errDump
Error 03
--------
0x2a5 (fabos): Jun 14 12:03:51
Switch: 0, Debug HAMKERNEL-IP_UP, 5, (session=3) Heartbeat up from Standby CP
Error 02
--------
0x2a5 (fabos): Jun 14 12:03:50
Switch: 0, Info HAM-REDUNDANT_INFO, 4,
(Heartbeat Up) System in REDUNDANT state
Error 01
--------
0x28b (fabos): Jun 14 12:01:27
Switch: 0, Error EM-CP_ERR, 2, CP in slot 5 set to faulty because of CP ERROR

switch:switch:admin>
```

See Also

errNvLogSizeSet

errNvLogSizeShow

errSaveLvlSet

errSaveLvlShow

errShow

errNvLogSizeSet

Resize the persistent error log.

Syntax

```
errNvLogSizeSet number_of_entries
```

Availability

Admin

Release

V4.1.x

Description

Use this command to resize the persistent error log of a switch to a new size specified by the operand *number_of_entries*. The persistent error log is resized immediately after the successful execution of this command.

Operands

This command has the following operand:

number_of_entries	Specify the new persistent error log size in unit of number of error log entries. The error log can be resized within the specified limits. This command fails if an attempt is made to change the persistent error log beyond the range of valid values. Valid values are from 1024 to 2048.

Example

The following example shows how to resize the persistent error log to 1500 entries:

```
switch:admin> errnvlogsizeset 1500
Persistent error log is  resized to store 1500 entries
switch:admin>
```

See Also

errNvLogSizeShow

errSaveLvlShow

errShow

errNvLogSizeShow

Displays the current persistent (non-volatile) error log configuration of a switch.

Syntax

```
errNvLogSizeShow
```

Availability

Admin

Release

V4.1.x

Description

Use this command to show the current maximum size of the persistent error log.

Note: The configuration of the persistent error log on the active CP is independent of the configuration on the standby CP.

Operands

None.

Example

The following example shows how to display persistent error log configuration:

```
switch:admin> errNvLogSizeShow
Persistent Error Log can store 1024 entries
```

See Also

errNvLogSizeSet

errSaveLvlShow

errShow

errSaveLvlSet

Set the error saving level of a switch.

Syntax

```
errSaveLvlSet lvl
```

Availability

Admin

Release

V4.1.x

Description

Use this command to control types of messages that are saved in the persistent error log. Message types are based on the message severity levels. By default, all messages of type Panic and Critical are saved in the persistent log. If you want to save messages of log levels less severe than Critical, use this command to specify a new message save level. This new message save level is not persistent across a reboot. It is in effect only for that run time cycle.

Operands

This command has the following operand:

lvl	Message severity level. Save those error log messages whose message severity level is less than (more severe) or equal to this level. The valid values are: 1 - Critical 2 - Error 3 - Warning 4 - Info 5 - Debug

Example

The following example shows how to enable saving of Warning, Critical, Error, and Panic messages in the persistent error log.

```
switch:admin> errSaveLvlSet 3
```

See Also

errDump

errNvLogSizeSet

errSaveLvlSet

errSaveLvlShow

errSaveLvlShow

Show current error save level setting of a switch.

Syntax

```
errSaveLvlShow
```

Availability

Admin

Release

V4.1.x

Description

Use this command to find out the current value of the persistent error log save level for a given switch instance.

Operands

None.

Example

Following example shows how to display current error log save level.

```
switch:admin> errsavelvlshow
Current message save level is = 1
switch:admin>
```

See Also

errNvLogSizeSet

errNvLogSizeShow

errSaveLvlSet

errShow

errShow

Displays the error log.

Synopsis: V3.1.x

```
errShow
```

Synopsis: V4.1.x

```
errShow [-a][-p]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display the error log, prompting the user to type return between each log entry. It is identical to `errdump`, except that `errdump` displays all entries without page breaks. The output of `errshow` command includes the display of errors/events recorded in the persistent error log during previous run time cycles and the display of error/event messages logged in the current run time cycle.

This command also provides options to display ONLY those error log messages that are saved in the persistent log and to display ONLY those messages that are logged during the current run time cycle.

All important error log messages, regardless of their message severity level, are stored in a persistent storage as they are logged. Both the persistent error log and the run time log are limited in space and managed as circular buffers. When either log overflows, old entries are replaced by new entries.

The persistent error log is saved across system reboots and power cycles and can be resized at run time.

Diagnostic Error Codes

Table 7 lists the error code numbers, the POST test that generates this error number, and the type of error.

Table 7: Diagnostic Error Codes (Sheet 1 of 4)

Error Number	Test	Error Type
0001	N/A	DIAG-CLEAR_ERR
0002	N/A	DIAG-BURNIN_START
0003	N/A	DIAG-BURNIN_STOP
0004	N/A	DIAG-POST_SKIPPED
0110	ramTest	DIAG-MEMORY
0111	ramTest	DIAG-MEMSZ
0112	ramTest	DIAG-MEMNULL
040F	portRegTest	DIAG-BUS_TIMEOUT
0415	portRegTest	DIAG-REGERR
0416	portRegTest	DIAG-REGERR_UNRST
0B0F	sramRetentionTest	DIAG-BUS_TIMEOUT
0B15	sramRetentionTest	DIAG-REGERR
0B16	sramRetentionTest	DIAG-REGERR_UNRST
0FA0	turboRamTest[1]	DIAG-TBRAM_WTEST
0FA1	turboRamTest[1]	DIAG-TBRAM_INC_WRTEST
0FA2	turboRamTest[1]	DIAG-TBRAM_DEC_WRTEST
1020	centralMemoryTest	DIAG-CMBISRTO
1021	centralMemoryTest	DIAG-CMBISRF
1025	centralMemoryTest	DIAG-LCMRS
1026	centralMemoryTest	DIAG-LCMTO
1027	centralMemoryTest	DIAG-LCMEM
1028	centralMemoryTest	DIAG-LCMEMT
1029	centralMemoryTest	DIAG-CMNOBUF
102A	centralMemoryTest	DIAG-CMERRTYPE
102B	centralMemoryTest	DIAG-CMERRPTN
102C	centralMemoryTest	DIAG-INTNOTCLR

Table 7: Diagnostic Error Codes (Sheet 2 of 4)

Error Number	Test	Error Type
1030	centralMemoryTest	DIAG-BADINT
106F	centralMemoryTest	DIAG-TIMEOUT
1F25	cmemRetentionTest	DIAG-LCMRS
1F26	cmemRetentionTest	DIAG-LCMTO
1F27	cmemRetentionTest	DIAG-LCMEM
2030	cmiTest	DIAG-BADINT
2031	cmiTest	DIAG-INTNIL
2032	cmiTest	DIAG-CMISA1
2033	cmiTest	DIAG-CMINOCAP
2034	cmiTest	DIAG-CMIINVCAP
2035	cmiTest	DIAG-CMIDATA
2036	cmiTest	DIAG-CMICKSUM
223B	camTest	DIAG-CAMINIT
223C	camTest	DIAG-CAMSID
2271	camTest	DIAG-XMIT
2640	portLoopbackTest	DIAG-ERRSTAT (ENCIN)
2641	portLoopbackTest	DIAG-ERRSTAT (CRC)
2642	portLoopbackTest	DIAG-ERRSTAT (TRUNC)
2643	portLoopbackTest	DIAG-ERRSTAT (2LONG)
2644	portLoopbackTest	DIAG-ERRSTAT (BADEOF)
2645	portLoopbackTest	DIAG-ERRSTAT (ENCOUT)
2646	portLoopbackTest	DIAG-ERRSTAT (BADORD)
2647	portLoopbackTest	DIAG-ERRSTAT (DISCC3)
264F	portLoopbackTest	DIAG-INIT
265F	portLoopbackTest	DIAG-PORTDIED
2660	portLoopbackTest	DIAG-STATS (FTX)
2661	portLoopbackTest	DIAG-STATS (FRX)
2662	portLoopbackTest	DIAG-STATS (C3FRX)
266E	portLoopbackTest	DIAG-DATA

Table 7: Diagnostic Error Codes (Sheet 3 of 4)

Error Number	Test	Error Type
266F	portLoopbackTest	DIAG-TIMEOUT
2670	portLoopbackTest	DIAG-PORTABSENT
2671	portLoopbackTest	DIAG-XMIT
3040	crossPortTest	DIAG-ERRSTAT (ENCIN)
3041	crossPortTest	DIAG-ERRSTAT (CRC)
3042	crossPortTest	DIAG-ERRSTAT (TRUNC)
3043	crossPortTest	DIAG-ERRSTAT (2LONG)
3044	crossPortTest	DIAG-ERRSTAT (BADEOF)
3045	crossPortTest	DIAG-ERRSTAT (ENCOUT)
3046	crossPortTest	DIAG-ERRSTAT (BADORD)
3047	crossPortTest	DIAG-ERRSTAT (DISCC3
304F	crossPortTest	DIAG-INIT
305F	crossPortTest	DIAG-PORTDIED
3060	crossPortTest	DIAG-STATS (FTX)
3061	crossPortTest	DIAG-STATS (FRX)
3062	crossPortTest	DIAG-STATS (C3FRX)
306E	crossPortTest	DIAG-DATA
306F	crossPortTest	DIAG-TIMEOUT
3070	crossPortTest	DIAG-PORTABSENT
3071	crossPortTest	DIAG-XMIT
3078	crossPortTest	DIAG-PORTWRONG
3840	spinSilk	DIAG-ERRSTAT (ENCIN)
3841	spinSilk[1]	DIAG-ERRSTAT (CRC)
3842	spinSilk[1]	DIAG-ERRSTAT (TRUNC)
841	spinSilk[2]	DIAG-ERRSTAT (CRC)
842	spinSilk[2]	DIAG-ERRSTAT (TRUNC)
3843	spinSilk	DIAG-ERRSTAT (2LONG)
3844	spinSilk	DIAG-ERRSTAT (BADEOF)
3845	spinSilk	DIAG-ERRSTAT (ENCOUT)

Table 7: Diagnostic Error Codes (Sheet 4 of 4)

Error Number	Test	Error Type
3846	spinSilk	DIAG-ERRSTAT (BADORD)
3847	spinSilk[1]	DIAG-ERRSTAT (DISCC3)
847	spinSilk[2]	DIAG-ERRSTAT (DISCC3)
384F	spinSilk	DIAG-INIT
385F	spinSilk	DIAG-PORTDIED
3870	spinSilk	DIAG-PORTABSENT
3871	spinSilk	DIAG-XMIT
3874	spinSilk	DIAG-PORTSTOPPED

1. V3.1.x only.
2. V4.1.x only.

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operands:

-a	Displays messages from the active error log. This displays the error log messages generated during the current run time cycle.
-p	Displays messages from the persistent error log.

Example

The following illustrates two entries in the error log:

```
switch:admin> errshow

Error 14
--------
0x304 (fabos): Jun 14 11:57:52
Switch: 0, Warning FW-STATUS_SWITCH, 3, Switch status changed from HEALTHY/OK
 to Marginal/Warning

Type <CR> to continue, Q<CR> to stop:
```

See Also

errDump
errNvLogSizeSet
errNvLogSizeShow
errSaveLvlSet
errSaveLvlShow
uptime

exit

Logout from a shell session.

Synopsis

```
exit
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to logout from a telnet, rlogin or serial port session. Telnet and rlogin connections are closed, the serial port returns to the “login:” prompt.

The commands “exit” and “quit” are accepted as synonyms for logout, as is a Ctrl-D typed at the beginning of a line.

Operands

None.

Example

To exit from a shell session:

```
switch:admin> exit
Connection to host lost.
```

See Also

logout

fabportshow

Displays fabric port information.

Synopsis

`fabportshow` *[slotnumber/]portnumber*

Availability

All users.

Release

V4.1.x

Description

Use this command to display the contents of a particular port data and also any pending commands (if applicable). The following information is displayed:

Port	Displays the port number.
State	The state of the port: P0 - Port Offline P1 - Port Online P2 - ELP ACC Received P3 - Link Reset Done I0 - Trunk Initiator: EMT Sent I1 - Trunk Initiator: ETP ACC Received I2 - Trunk Initiator: ETP Sent I3 - Trunk Initiator: Link Reset T0 - Trunk Target: EMT Received T1 - Trunk Target: ETP Received T2 - Trunk Target: Link Reset
List	IU list pointer.

Flags	Port flags: 0x00000001 slave connection 0x00000002 loop back connection 0x00000004 incompatible connection 0x00000008 overlapping domains 0x00000010 overlapping zones 0x00000020 done PTIO ioctl 0x00000040 sent a RJT to ELP 0x00000080 BF received from the port 0x00000200 segmented by routing code 0x00000800 zoning has completed 0x00001000 segmented by Platform Management 0x00002000 segmented due to no license 0x00004000 segmented due to E_Port disabling 0x00008000 DIA already sent for that port 0x00010000 RDI already sent 0x00020000 port is true T port 0x00040000 Port received an ELP 0x00080000 Port received an ELP RJT 0x00100000 LR Pending due to ELP RJT rcv 0x00200000 Received a DIA on this port 0x00400000 Port is the EMT Initiator 0x00800000 Security violation 0x01000000 Security incompatibility 0x02000000 Rcv a DIA ACC
nbrWWN	Neighboring switch's WWN
red_ports	All E-Ports that are connected to the same neighboring switch.

Operands

This command has the following operands:

slotnumber	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display fabric port information:

```
switch:admin> fabportshow 4/14
Fabric Port Information:
========================

Port:        62
State:       P3
List:        0x10068418
List Count:  0
Flags:       0x280120
nbrWWN:      10:00:00:60:69:80:06:cf
red_ports:
10 11 62 63

Open commands pending:
======================
No commands pending

switch:admin>
```

See Also

portshow

fabretryshow

Displays the retry count of the fabric commands.

Synopsis

```
fabretryshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the retry count of the fabric commands. The first line of display shows:

SW_ISL ISL ports

Each line below shows the retry count for the following fabric commands:

- ELP Exchange Link Parameters
- EFP Exchange Fabric Parameters
- DIA Domain Identifier Assigned
- RDI Request Domain Identifier
- BF Build Fabric
- RSCN Remote State Change Notification
- FWD Fabric Controller Forward
- EMT Fabric Controller Mark Timestamp
- GAID Get Address IDentifier
- INQ Inquiry command

Operands

None.

Example

To display the retry count of Fabric OS commands:

```
switch:user> fabretryshow
E_Ports
SW_ILS          0       1       2       3       4       5       6       7
ELP             0       0       0       0       0       0       0       0
EMT             0       0       0       0       0       0       0       0
ETP             0       0       0       0       0       0       0       0
EFP             0       0       0       0       0       0       0       0
AAI             0       0       0       0       0       0       0       0
RDI             0       0       0       0       0       0       0       0
BF              0       0       0       0       0       0       0       0
```

See Also

fabstatsshow

fabricprincipal

Set the Principal Switch Selection mode.

Synopsis

`fabricprincipal [-fhq][ 1 | 0 ]`

Availability

All users can display current setting.

Admin can modify current setting.

Release

V4.1.x

Description

Use this command to set Principal Switch Selection Mode for the switch.

The implementation of the `fabricprincipal` command is based solely on mechanisms specified in the Fibre Channel standards. These mechanisms provide a *preference* for a switch requesting to be the principal switch in a fabric, but they do not provide an absolute guarantee that a switch requesting to be the principal switch will actually achieve this status.

When dealing with larger fabrics, the selection of the principal switch is less deterministic. In these cases, to help ensure that the desired switch is selected as the principal switch, a small selection of switches should be connected together first, followed by the addition of the rest of the fabric.

Operands

This command has the following operands:

`-f`	Specify the `-f` option to force a fabric rebuild. This option is required with when enabling principal switch mode.
`-h`	Specify the `-h` option to display out command usage summary.
`-q`	Specify the `-q` option to display the current mode state.

1 | 0	Specify 1 to enable principal switch mode, or specify 0 to disable principal switch mode (the mode activates when the fabric rebuilds). This operand is optional.

Example

To display the current mode setting:

```
switch:admin> fabricprincipal -q
Principal Selection Mode: Enable
```

To disable the mode setting:

```
switch:admin> fabricprincipal 0
Principal Selection Mode disaable
```

To enable the mode setting:

```
switch:admin> fabricprincipal 1
Principal Selection Mode enabled
```

To enable the mode setting and force fabric rebuild:

```
switch:admin> fabricprincipal -f 1
Principal Selection Mode enabled (Forcing fabric rebuild)
```

See Also

fabricshow

fabricShow

Displays fabric membership information.

Synopsis

```
fabricShow
```

Availability

All users.

Release

V4.1.x

Description

Use this command to display information about switches and multicast alias groups in the fabric.

If the switch is initializing, or disabled, the message “no fabric” is displayed. If the fabric is reconfiguring, some or all switches may not be shown. Otherwise, the following fields are shown:

Switch ID	The switch Domain_ID and embedded port D_ID.
World Wide Name	The switch WWN.
Enet IP Addr	The switch Ethernet IP address.
FC IP Addr	The switch FC IP address.
Name	The switch symbolic name. An arrow (>) indicates the principal switch.

Multicast alias groups are created on demand by request from N_Ports attached to the alias server; typically no groups are listed. If multicast alias groups exist, the following information is shown:

Group ID	The alias group number and D_ID.
Token	The alias group token (assigned by the N_Port).

Operands

None.

Example

The following example shows a fabric of four switches. “sw180” is the principal switch. Three of the switches are configured to run IP over Fibre Channel. There is one multicast alias group.

```
switch:admin> fabricShow
Switch ID   Worldwide Name           Enet IP Addr    FC IP Addr      Name
-------------------------------------------------------------------------
 3: fffc43 10:00:00:60:69:10:60:1f  192.168.64.187  0.0.0.0         "sw187"
 2: fffc42 10:00:00:60:69:00:05:91  192.168.64.60   192.168.65.60   "sw60"
 1: fffc41 10:00:00:60:69:00:02:0b  192.168.64.180  192.168.65.180 >"sw180"
 0: fffc40 10:00:00:60:69:00:06:56  192.168.64.59   192.168.65.59   "sw5"
The Fabric has 4 switches

Group ID    Token
-----------------
0: fffb01 40:05:00:00:10:00:00:60:69:00:00:15
```

See Also

switchShow

fabstateclear

Clears the fabric state information.

Synopsis

```
fabstateclear
```

Availability

Admin

Release

V4.1.x

Description

Use this command to clear the queue of fabric state information logged by the fabric.

Operands

None.

Example

To clear the fabric state information:

```
switch:admin> fabstateclear
switch:admin> fabstateshow
Time Stamp   Input and *Action                          S, P   Sn,Pn  Port  Xid
==========================================================================
switch:admin>
```

See Also

fabstateshow

fabstateshow

Displays the fabric state information.

Synopsis

```
fabstateshow
```

Availability

Admin

Release

V4.1.x

Description

Use this command to display the queue of fabric state information logged by the fabric.

Operands

None.

Example

To display the fabric state information:

```
switch:admin> fabstateshow
Time Stamp   Input and *Action                          S, P   Sn,Pn  Port  Xid
=========================================================================
10:58:35.185 BF Rcv                                  A2,P3  A2,P3  4     0x287
10:58:35.185 *Change State                            A2,NA  F0,NA  NA    NA
10:58:35.185 BF sending ACC                          F0,P3  F0,P3  4     0x287
10:58:35.197 *Canceling All Node Timers               F0,NA  F0,NA  NA    NA
10:58:35.198 *BF Flood                                F0,NA  F0,NA  NA    NA
10:58:35.200 *BF Send                                F0,P3  F0,P3  40    0x253
10:58:35.200 *BF Flood Done                           F0,NA  F0,NA  NA    NA
10:58:35.200 *Cancel 2 * F_S_TOV Timer                F0,NA  F0,NA  NA    NA
10:58:35.204 *Cancel EFP Flood Timer                  F0,NA  F0,NA  NA    NA
10:58:35.204 *Cancel RDI Receive Timer                F0,NA  F0,NA  NA    NA
10:58:35.205 *Cancel RDI Send  Timer                  F0,NA  F0,NA  NA    NA
10:58:35.205 *Start F_S_TOV Timer                     F0,NA  F0,NA  NA    NA
```

See Also

fabstateclear
fabportshow

fabStatsShow

Displays the fabric statistics information.

Synopsis

```
fabStatsShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the statistics information of fabric. The information displayed is as follows:

- Number of times a switch domain ID has been forcibly changed
- Number of E_Port offline transitions
- Number of fabric reconfigurations
- Number of fabric segmentations due to:
  Loopback
  Incompatibility
  Overlap
  Zoning
  Routing
  Licensing
  Disabling E_Port

Operands

None.

Example

To display the fabric statistics information:

```
switch:admin> fabstatsshow
Description                     Count  Port  Time
-------------------------------------------------------------
Domain ID forcibly changed:         0
E_Port offline transitions:         0
Reconfigurations:                   0
Segmentations due to:
                  Loopback:         2
            Incompatibility:        0
                    Overlap:        0
                     Zoning:        3
                    Routing:        6
                  Licensing:        0
           Disabling E_Port:        0
  Incompatible platform DB:         0
        Security violation:         0
  Security incompatibility:         0
switch:admin>
```

See Also

psShow

tempShow

fabswitchshow

Displays the fabric switch state structure information.

Synopsis

```
fabswitchshow
```

Availability

All users.

Release

V4.1.x

Description

Use this command to display the fabric switch state structure information. This command is strictly for debugging purpose. It is not intended as a user command.

Operands

None.

Example

To display fabric switch state structure:

```
switch:admin> fabswitchshow
Fabric Switch State Structure Information
=========================================
State:                  A2
Rdi Receive Timer:      0x10051b48, IDLE STATE
Unconfirmed Sw Timer:   0x10051c50, IDLE STATE
Principal Domain:       4
Upstream Port:          4
Principal Wwn:          10:00:00:60:69:00:54:e8
Principal Prioritry:    0x2
Flags:                  0x8
inq_sem count:          1
dbg_sem count:          1
fab_q current count:    0
fab_q high water:       16
fab_q age:              0 (sec)
dup xid occurance:      0
last message:
14:47:57.029 RSCN Rcv addr: 0x51080b00               A2,NA  A2,NA  NA    NA

reachable domains:
1 2 4 5 6 7 8 9 10 11 12 14 15 16 17 18
16 domains reachable
Ports used for EFP/BF/DIA flood:
4 42

Command Statistics:
command   high(ms)  low(ms)   ave(ms)   total     dropped
=========================================================
fc_write  151       1         0         655       N/A
P Timer   0         0         0         0         N/A
BF Timer  42        31        35        9         N/A
<output truncated>
switch:admin>
```

See Also

supportshow

fanDisable

Disable a fan unit.

Synopsis

`fanDisable` *`unit`*

Availability

Admin

Release

V4.1.x

Description

Use this command to disable a non-faulty fan unit by setting the RPM speed to 0.

Operand

This command has the following operand:

`unit`	Specify the fan's unit number. View the fan unit numbers using the `fanShow` command. This operand is required.

Example

To disable a fan unit:

```
san95:admin> fandisable 1

Fan unit 1 has been disabled
switch:admin>
```

See Also

fanShow

fanEnable

fanEnable

Enable a fan unit.

Synopsis

`fanEnable` *`unit`*

Availability

Admin

Release

V4.1.x

Description

Use this command to set the fan unit back to the default RPM speed only if the fan unit has been previously disabled using the `fanDisable` command.

Operand

This command has the following operand:

`unit`	Specify the fan's unit number. View the fan unit numbers using the `fanShow` command. This operand is required.

Example

To enable a fan that has been disabled:

```
switch:admin> fanenable 1

Fan unit 1 has been enabled
switch:admin> fanshow

Fan #1 is OK, speed is 2237 RPM
Fan #2 is OK, speed is 2500 RPM
Fan #3 is OK, speed is 2445 RPM
```

See Also

fanShow

fanDisable

fanShow

Displays fan status.

Synopsis

```
fanShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the current status of the switch fans.The format of the display varies according to the switch model and number of fans. Some switch models show fan speed measured in RPM (revolutions per minute).

Fan status is shown as:

OK	Fan is functioning correctly.
absent	Fan is not present.
below minimum	Fan is present but rotating too slowly or stopped.
unknown	Unknown fan unit installed.
faulty	Fan has exceeded hardware tolerance.

Note: The output from this command varies depending on switch type and number of fans present.

Operands

None.

Example

To display the status and RPMs for the fans:

```
switch:admin> fanShow
Fan #1 is OK, speed is 2721 RPM
Fan #2 is OK, speed is 2721 RPM
Fan #3 is OK, speed is 2657 RPM
switch:admin>
```

See Also

fanDisable

fanEnable

psShow

tempShow

fashow

Displays Fabric Assist Information.

Synopsis

```
fashow
```

Availability

All users.

Release

V3.1.x

Description

This command displays information about Fabric Assist host ports. This command will display the port number and PID for each Fabric Assist host port located on this switch. It will also display a listing of each Target that has a Fabric Assist phantom on the host's port. The target's PID, assigned phantom AL_PA, preferred AL_PA and current online/offline status will all be displayed.

The message “No Fabric Assist Host Ports on this Switch” is displayed if Fabric Assist is disabled, or if there are no Fabric Assist host ports on the switch.

If the switch was unable to assign a phantom for the target then the message “No Phantom” will be displayed in the Status column. This switch will be unable to create a phantom if there are no available AL_PAs on the loop, or if there are more than 125 phantoms zoned to hosts on any one switch.

If the preferred AL_PA can not be assigned as the target's AL_PA, then the **AL_PA** field of the target will be left blank and “AL_PA Conflict” will be displayed in the Status column. In this situation the target's phantom won't be created.

Each line of output shows:

Fabric Assist Mode: Enabled or Disabled	
port	The port number of the Fabric Assist host
PID	The 24-bit Fibre Channel address of the host.
Fabric Assist	The Online/Offline status of the host.
Target	The 24-bit Fibre Channel address of a zoned Target that current has a phantom assigned to the host.
ALPA	The assigned phantom ALPA for the target.
PREF_ALPA	The preferred ALPA given for the target.
Status	The Online/Offline status of the target.

Operands

None.

Example

This example shows two Fabric Assist host ports on the switch.:

```
switch:admin> fashow
Fabric Assist Mode:  Enabled

Port  PID      Fabric Assist   Target    ALPA    PREF_ALPA    Status
-------------------------------------------------------------------------
00    0x011001 Online          0x011498  (0xef)  (0xef)       Online
                               0x011497  (0x97)               Online
                               0x011490  (0x90)               Online
                               0x01148f  (0x8f)               Online
                               0x011488  (0x88)               Online
                               0x011484  (0x84)               Online
                               0x011482  (0x82)               Online
                               0x011481  (0x81)               Online
                               0x011480  (0x80)               Online
                               0x01147c  (0x7c)               Online
                               0x01147a  (0x7a)               Online
                               0x011475  (0x75)  (0xef)       ALPA Conflict
01    0x0111ef Online          0x0115ab  (0xab)  Online
                               0x0115b4  (0xb4)  Online
                               0x0115b3  (0xb3)  Online
                               0x0115b2  (0xb2)  Online
                               0x0115b1  (0xb1)  Online
                               0x0115ae  (0xae)  Online
                               0x0115ad  (0xad)  Online
                               0x0115ac  (0xac)  Online
```

See Also

fazonecreate

fastatsshow

faStatsShow

Displays statistics about Fabric Assist.

Synopsis

```
faStatsShow
```

Availability

All users.

Release

V3.1.x

Description

Use this command to display statistical information about Fabric Assist host ports. This command displays the port number for each Fabric Assist host port located on the switch. It also displays the total number of LIPs performed by the port since activation of Fabric Assist zoning.

This command also displays the total number of LIPs that were initiated by Fabric Assist, and which Fabric Assist PID caused the LIP to be sent.

The message `No Fabric Assist Host Ports on this Switch` is displayed if Fabric Assist is disabled, or if there are no Fabric Assist host ports on the switch.

Each line of output shows:

port	The port number of the Fabric Assist host.
Total LIPs	The total number of LIPs detected on the port since Fabric Assist was enabled.
Fabric Assist LIPs	Total number of LIPs initiated by Fabric Assist.
Last Caused by	The PID of the port that caused the last Fabric Assist initiated LIP.

Operands

None.

Example

This example shows three Fabric Assist host ports on the switch.

```
sw1:admin> faStatsShow
Port  Total LIPs   Fabric Assist LIPs  Last Caused by
-----------------------------------------------------
00     3             1                 0x011001
01     1             1                 0x0511ef
03     1             1                 0x0511ef
```

See Also

fazoneCreate

faShow

fastboot

Reboot the switch, bypassing POST.

Synopsis

```
fastboot
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to reboot the switch, bypassing Power On Self Test (POST). The reboot takes effect immediately as the switch resets and executes normal power-on booting sequence. However, POST is skipped. This reduces boot time significantly.

If POST has been disabled using the `diagDisablePost` command, then `fastboot` is the same as reboot. However, fastboot skips the POST on the current reboot, while `diagDisablePost` skips POST on all future reboots until cancelled by `diagEnablePost`.

Because `fastboot` reboots the CP a WARNING message and a confirmation are displayed. The command only takes place if the user responds positively.

Note: For the StorageWorks Core switch, the `fastboot` command will reboot both logical switches and both CPs.

Operands

None.

Example

This example is for the StorageWorks Core switch:

```
switch:admin>fastboot

Warning: This command is being run on a control processor (CP)
based system and will cause the active CP to reboot. This will
cause disruption to devices attached to both switch 0 and switch 1.
To just reboot a logical switch on this system, use command
switchreboot(1M) on the logical switch you intend to reboot.

Are you sure you want to reboot the active CP [y/n]?y
```

See Also

diagDisablePost

diagEnablePost

switchreboot

reboot

fazoneAdd

Add a member to a Fabric Assist zone.

Synopsis

`fazoneAdd "fazoneName","member;member"`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command adds one or more members to an existing Fabric Assist zone.

This command does not change the defined configuration (which you can view using the `cfgShow` command) until the `cfgSave` command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

fazoneName	Specify the name for the Fabric Assist zone in quotation marks. This operand is required.
member	Specify a list of Fabric Assist Zone members. The list must be enclosed in quotation marks, and each member must be separated by a semicolon. A member can be specified by one or more of the following methods: ■ For V3.1.x, enter a fabric domain and physical port number pair. ■ For V4.1.x, enter a fabric domain and area number pair. View the area numbers for ports using the `switchShow` command. ■ WWNs. ■ Fabric Assist zone alias names. ■ Exactly one Fabric Assist host member. This operand is required.

Example

To add aliases for some disk arrays to “Blue_fazone”:

```
switch:admin> fazoneAdd “Blue_fazone”, “array3; array4; array5”
```

To add a Fabric Assist host member to “Blue_fazone”:

```
switch:admin> fazoneAdd “Blue_fazone”, “H{5,6}”
```

See Also

fazoneCreate

fazoneDelete

fazoneRemove

fazoneShow

fazoneCreate

Create a Fabric Assist zone.

Synopsis

```
fazoneCreate "fazoneName","member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command creates a new Fabric Assist zone (fazone). You must specify a name and member list for a Fabric Assist zone. The FA zone name must be unique from any previously used Fabric Assist zone object. The member list must be enclosed in quotation marks and each member must be separated by a semicolon.

A Fabric Assist zone name is a C language-style name. It must begin with a letter and be followed by any number of letters, digits, and underscore characters. Names are case sensitive, for example, “Zone_1” and “zone_1” are different Fabric Assist zones. White space is ignored.

The Fabric Assist zone member list must have at least one member. Empty lists are not allowed.

When a Fabric Assist zone member is specified by physical fabric port number, then any and all devices connected to that port are in the Fabric Assist zone. If this port is an arbitrated loop, then all devices on the loop are in the Fabric Assist zone.

WWNs are specified as eight hex numbers separated by colons, for example, “10:00:00:60:69:00:00:8a”. Zoning has no knowledge of the fields within a WWN; the eight bytes are simply compared with the Node and Port Names presented by a device in a login frame (FLOGI or PLOGI).

When a Fabric Assist zone member is specified by Node Name, then all ports on that device are in the Fabric Assist zone. When a Fabric Assist zone member is specified by Port Name, only that single device port is in the Fabric Assist zone.

Zone alias names have the same format as Fabric Assist zone names and are created with the `alicreate` command. The alias must resolve to a list of one or more physical fabric port numbers, WWNs, or a Fabric Assist host.

When a Fabric Assist zone member is specified by Node Name, then all ports on that device are in the Fabric Assist zone. When a Fabric Assist zone member is specified by Port Name, only that single device port is in the Fabric Assist zone. Zone alias names have the same format as Fabric Assist zone names and are created with the `aliCreate` command. The alias must resolve to a list of one or more physical fabric port numbers, WWNs, QuickLoop AL_PAs, or an Initiator member.

A Fabric Assist host member is defined by wrapping the physical fabric port or a physical device (a WWN) between “H{” and “}”. For example, “H{5,6}” or “H{10:00:00:60:69:00:00:8a}” is a Fabric Assist host. The type of Fabric Assist zone members used to define a Fabric Assist zone may be mixed and matched. For example, a Fabric Assist zone defined with the following members: “2,12; 2,14; 10:00:00:60:69:00:00:8a” would contain devices connected to switch 2, ports 12 and 14, and the device with a WWN of “10:00:00:60:69:00:00:8a” (either Node Name or Port Name - whichever port in the fabric it is connected to.)

Each target listed within the fazone definition shall be assigned an ALPA when the private host performs loop initialization. When the private host communicates with this assigned ALPA the private loop frame shall be translated into a public format and then delivered to the target's location within the fabric.

Loop devices that are zoned with the private host shall be assigned the same ALPA that they claimed during their own loop initialization, provided that it is still available on the private host's loop. Other public devices zoned with the private host shall be assigned the lowest available ALPA during the private host's loop initialization.

If however, the ALPA by which the fazoned target must be identified by does not conform to the default ALPA assignment process, then a preferred ALPA may be assigned to each target within the fazone definition. The identified preferred ALPA shall be the ALPA value that is assigned to the target during the private host's loop initialization, provided that it is not claimed by the private host or another preferred ALPA assignment.

To assign a preferred ALPA add to the definition of the target (Domain, Port, or WWN) the preferred ALPA within square brackets [ ]. For example, a fazone defined as:

```
"H{1,1}; 2,12[0xe2]; 2,14[0xe8]; 10:00:00:60:69:00:00:8a[0xef]"
```

would contain all devices connected to switch 2, ports 12 and 14, and the device with a WWN of "10:00:00:60:69:00:00:8a" (either Node Name or Port Name) whichever port in the fabric it is connected to. The target connected to switch 2, port 12 would be assigned an ALPA value of 0xE2, and the target connected to port switch 2, port 14 would be assigned an ALPA value of 0xE8. Finally, the ALPA assigned to the target identified by the WWN would be assigned a value of 0xEF.

Preferred ALPA assignments given to a Domain Port that is not a public N_Port device are ignored, and the fazone is created without error.

Note: This command does not change the defined configuration (which you can view using the `cfgShow` command) until the `cfgSave` command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

The following operands are required:

fazoneName	Specify a name for the Fabric Assist zone. The name must be enclosed in quotation marks. This operand is required.
member	Specify a member or list of members to add to a Fabric Assist zone. The list must be enclosed in quotation marks, and each member must be separated by a semicolon. A member can be specified by one or more of the following methods: ■ For V3.1.x, enter a fabric domain and physical port number pair. ■ For V4.1.x, enter a fabric domain and area number pair. View the area numbers for ports using the `switchShow` command. ■ WWNs. ■ Fabric Assist zone alias names. ■ Exactly one Fabric Assist host member. This operand is required.

Example

To create three Fabric Assist zones using a mixture of port numbers and Fabric Assist zone aliases:

```
switch:admin> fazoneCreate “fazone1”, “H{1,0}; loop1”
switch:admin> fazoneCreate “fazone2”, “H{1,1}; array1; 1,2; array2”
switch:admin> fazoneCreate “fazone3”, “1,0; loop1; H{1,2}; array2”
```

See Also

fazoneAdd

fazoneDelete

fazoneRemove

fazoneShow

fazoneDelete

Delete a Fabric Assist mode zone.

Synopsis

`fazoneDelete "fazoneName"`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to delete an existing Fabric Assist mode zone on a fabric.

This command does not change the defined configuration (which you can view using the `cfgShow` command) until the `cfgSave` command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

The following operand is required:

fazoneName	Specify the name of the zone to be deleted, in quotation marks.

Example

To delete a Fabric Assist zone:

```
switch:admin> fazoneDelete "Blue_fazone"
```

See Also

fazoneCreate

faShow

faStatsShow

fazoneRemove

Remove members from a Fabric Assist mode zone.

Synopsis

`fazoneRemove "fazoneName","member;member"`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command removes one or more members from an existing Fabric Assist zone.

Each deleted member must be found by an exact string match. Order is important when removing multiple members of a Fabric Assist zone. For example, if a Fabric Assist zone contains "array2; array3; array4" then removing "array4; array3" fails, but removing "array3; array4" succeeds. If issuing this command results in all members being removed, the Fabric Assist zone is deleted.

Note: This command does not change the defined configuration (which you can view using the `cfgShow` command) until the `cfgSave` command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

The following operands are required:

`fazoneName`	Specify a name for the Fabric Assist zone in quotation marks. This operand is required.
`member`	Specify a member or list of members to remove from a Fabric Assist zone. The list must be enclosed in quotation marks, and each member must be separated by a semicolon. A member can be specified by one or more of the following methods: ■ For V3.1.x, enter a fabric domain and physical port number pair. ■ For V4.1.x, enter a fabric domain and area number pair. View the area numbers for ports using the `switchShow` command. ■ WWNs. ■ Fabric Assist zone alias names. ■ Exactly one Fabric Assist host member. This operand is required.

Example

To remove “array2” from “Blue_fazone”:

```
switch:admin> fazoneRemove “Blue_fazone”, “array2”
```

See Also

fazoneAdd

fazoneCreate

fazoneDelete

fazoneShow

fazoneShow

Displays fazone information.

Synopsis

```
fazoneShow ["pattern"[, transflag]]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display fazone information. Specifying this command with no parameters or with the second parameter set to zero displays all fazone configuration information for both Defined and Effective configurations. Defined configuration information is shown from the transaction buffer. See the `cfgShow` command for a description of this display.

Note: The pattern operand must be in quotation marks for V3.1.x. Quotation marks are not required for V4.1.x.

If a parameter is specified, it is used as a pattern to match fazone names, and those that match in the Defined configuration are displayed.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

pattern	Specify a value to search for the name of an fazone. This can be any POSIX style expression. This operand must be in quotation marks for V3.1.x. Patterns can contain: ■ Question mark "?" that matches any single character ■ Asterisk "*" that matches any string of characters ■ Ranges which match any character within the range. For example, [0-9] or [a-f]. This operand is optional.
transflag	Specify 0 to display the information from the current transaction, or specify 1 to display information from the original buffer. This operand must be preceded by a pattern.

Example

To display all fazones beginning with the letters A through C:

```
switch:admin> fazoneShow "[A-C]*"
        fazone:  Blue_fazone
                 1,1; array1; 1,2; array2
```

See Also

fazoneAdd

fazoneCreate

fazoneDelete

fazoneRemove

fcpprobeshow

Displays the FCP probe information.

Synopsis: V3.1.x

`fcpprobeshow` *`portnumber`*

Synopsis: V4.1.x

`fcpprobeshow` *`[slotnumber/]portnumber`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the FCP probing information for a particular device which should be of type F/FL port. If the given port is not either of the above types, then the following message displays:

```
port x is not an FL_Port or an F_Port
```

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display FCP probe information:

```
switch:admin> fcpprobeshow 4
port 4 is L-Port and it is online.
nodes probed:           2
successful PLOGIs:      2
successful PRLIs:       2
successful INQUIRies:   2
successful LOGOs:       2
outstanding IUs:        0

list of devices(may include old devices on the loop):
0x2b4e2: IBM     DDYF-T09170R    F60N
0x2b4e4: IBM     DDYF-T09170R    F60N
```

See Also

portloginshow

portshow

fcprlsshow

Displays the fcp rls information.

Synopsis: V3.1.x

`fcprlsshow` *`portnumber`*

Synopsis: V4.1.x

`fcprlsshow` *`[slotnumber/]portnumber`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the fcp rls (read link state) information for a particular device which should be of type F/FL port. If the given port is not either of the above types, then the following is displayed:

```
port x is not an FL_Port or an F_Port
```

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the fcp rls information (V4.1.x example):

```
switch:admin> fcprlsshow 9/1
       link fail   loss sync   loss sig   prtc err   bad word   crc err
switch:admin>
```

See Also

portloginshow

portshow

fdmicacheshow

Displays abbreviated remote FDMI device information according to remote domain ID.

Synopsis

```
fdmicacheshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to displays FDMI cache information for remote domains only.

The state of each remote domain, identified by its domain ID is shown to be either UNKNOWN, KNOWN or ERROR.

The revision of FDMI supported is also shown followed by the identifiers of all the HBAs at the domain and the corresponding registered port list of the HBA attributes.

For HBAs, only the HBA identifiers and registered port lists are show. No detailed HBA attributes are displayed. For registered ports, only its port identifiers and the HBA identifier of which the port is registered for are shown. No detailed port attributes are displayed.

Operands

None.

Example

To view the FDMI cache (V3.1.x example):

```
switch:admin> fdmicacheshow
state    rev
KNOWN    v310

HBAs:
10:00:00:00:c9:25:9b:96

Total number of ports: 1
Ports:
10:00:00:00:c9:25:9b:96

Total count of devices on the switch is 1
```

To display the FDMI cache (V4.1.x example):

```
switch:admin> fdmicacheshow
Switch entry for domain 1
state    rev
KNOWN        No devices.

Total count of devices on the switch is 0

Switch entry for domain 2
state    rev
KNOWN    v410

No devices.

Total count of devices on the switch is 0

Switch entry for domain 4
state    rev
UNKNOWN  v260

No devices.

Total count of devices on the switch is 0

switch:admin>
```

See Also

fdmishow

fdmishow

Displays detailed FDMI device information.

Synopsis

```
fdmishow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display FDMI information for all HBAs and ports.

Detailed FDMI information are displayed for local HBAs and ports. These includes HBA and port identifiers, HBA registered port list, and all the detailed attributes for HBA and ports.

Only abbreviated FDMI information are shown for HBA and ports on remote switches.

Operands

None.

Example

For a managing master switch:

```
switch:admin> fdmishow
FDMI LOCAL_HBA hash contains:
  Id: 10:00:00:00:c9:25:9b:96

  Port List: total 1 port(s)
    Id: 10:00:00:00:c9:25:9b:96
    Port attributes:
      FC4 Types: 0x0001000001000000000000000000000000000000000000000000000000000000...
      Supported Speed: 0x00000001
      Port Speed: 0x00000001
      Frame Size: 0x00000800

  HBA attributes:
    Node Name: 20:00:00:00:c9:25:9b:96
    Manufacturer: Emulex Network Systems
    Serial Number: 0000c9259b96
    Model: LP9000
    Model Description: Emulex LightPulse LP9000 1 Gigabit PCI Fibre Channel
     Adapter
    Hardware Version: 00000001
    Driver Version: SLI-2 SW_DATE:May  3 2002, v5-2.11a2 **CT_TEST 1**
    Firmware Version: 03814101
    OS Name and Version: Window 2000
    Max CT Payload Length: 0x00061300

FDMI LOCAL_PORT hash contains:
  Id: 10:00:00:00:c9:25:9b:96

FDMI REMOTE_HBA hash contains no entry.

FDMI REMOTE_PORT hash contains no entry.
```

See Also

fdmicacheshow

filterTest

Frame Filter test.

Synopsis: V3.1.x

`filterTest` *`[passcnt]`*

Synopsis: V4.1.x

`filtertest` *`[-passcnt passcnt][-txports list][-scamoff offset][-dcamoff offset][-fdefoff offset]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to verify that the ASIC frame level filtering logic includes every type of filter actions:

- FLTACT_LIST_A - action to handle the subgroup A based filtering
- FLTACT_LIST_B - action to handle the subgroup B based filtering
- FLTACT_FROZEN - action to handle the frame frozen process
- FLTACT_DISCARD - action to discard frame
- FLTACT_FORWARD - action to forward frame

This command can be run on every port, and send the frame in internal loop back mode. The filter test requires two different ports in same quadrant due to the fact that the filter logic sits in transmitter port can not work if frame is sent directly from the embedded port.

This command may not be executed on an operational switch. You must first disable the switch using the `switchdisable` command.

In this test, the filter definition covers the following different filtering conditions:

Table 8: List of Filter Test Numbers, Definitions, and Action Types

Number	Filter Definition	Action Type
0	unconditional match	Forward
1	unconditional match	List A
2	unconditional match	List B
3	unconditional match	Frozen
4	unconditional match	Discard
5	SCAM no match and AL_PA match	List A
6	SCAM&DCAM match and AL_PA match	List A
7	Zone A match and AL_PA match	List A
8	Zone B match and AL_PA match	List B
9	Zone A&B match and AL_PA match	List B
10	Zone A|B match and AL_PA match	Frozen
11	Zone A|B match and AL_PA match	Discard

Operands

This command has the following operands:

passcnt (V3.1.x only)	Specify the number of times to perform this test. The default value is 1.
-passcnt passcnt (V4.1.x only)	Specify the number of times to perform this test. The default value is 1.
-txports list (V4.1.x only)	Specify the user port numbers to perform this test. All user ports are set in default.
-scamoff offset (V4.1.x only)	Specify the program location to write SCAM test data in SCAM memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.
-dcamoff offset (V4.1.x only)	Specify the program location to write DCAM test data in DCAM memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.

-fdefoff offset (V4.1.x only)	Specify the program location to write filter test definition data in filter definition memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.

Errors: V4.1.x

When it detects failures, the subtest may report one or more of the following error messages:

```
DIAG-FLTINIT
DIAG-FLTXMIT
DIAG-FLTRCV
DIAG-ACTTEST
DIAG-NUMTEST
```

Example

To run the filterTest (V4.1.x example):

```
switch:admin> filterTest -txports 2/1-2/3
Running Filter Test ........... passed.
```

See Also

camTest

centralMemoryTest

cmemretentiontest

crossporttest

cmiTest

itemlist

portLoopbackTest

portRegTest

ramTest

spinSilk

sramRetentionTest

firmwareCommit

Commit switch firmware update.

Synopsis

```
firmwareCommit
```

Availability

Admin

Release

V4.1.x

Description

Use this command to commit a firmware download to a CP. This command copies an updated firmware image on the primary partition to the secondary partition and commits both partitions of a CP to an updated version of the firmware. This must be done after each `firmwaredownload`, and after the switch has been rebooted and a sanity check is performed to make sure the new image is fine.

For switches which have flash memory set into two equal partitions, the primary partition is the where the system boots from, the secondary partition is where a copy of the firmware is stored, in case the primary partition is damaged.

To maintain the integrity of the firmware image in the flash memory, the `firmwaredownload` command updates both partitions at once. When `firmwaredownload` completes successfully and the CP is rebooted, the system switches the primary partition (with the old firmware) to the secondary, and the secondary partition (with the new firmware) to the primary.

The default behavior of the `firmwaredownload` command automatically runs the `firmwarecommit` command after the reboot. For the cautious, the `firmwaredownload` command has an option to disable auto-commit of the new firmware. If you decide to disable the auto-commit option when running `firmwaredownload`, then, after the CP is rebooted, you must execute one of two commands:

- Run the `firmwarecommit` command to copy the primary partition (with new firmware) to the secondary, and commit the new firmware to both partitions of the CP, or

- Run the `firmwarerestore` command to copy the secondary partition (with the old firmware) to the primary, and back out of the new firmware download.

Operands

None.

Example

To commit a new version of the firmware:

```
switch:admin> firmwarecommit
Doing firmwarecommit now.
Please wait ...
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................

Replicating kernel image.
.............
FirmwareCommit completes successfully.
switch:admin>
```

See Also

firmwareDownload

firmwarerestore

firmwareDownload

Download switch firmware from a remote host or from a local directory.

Synopsis: V3.1.x

```
firmwareDownload [host, user, file [,passwd]]
```

Synopsis: V4.1.x

```
firmwareDownload [[-sbni] host,user,pfile [,passwd]]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description: V3.1.x

Use this command to download switch firmware from a remote host or from a local directory to the switch's non-volatile storage area. The firmware download process uses FTP.

Note: V3.1 supports RSHD and FTP protocol for firmware downloads.

The V3.1 firmware is in the form of a single binary file. This package is made available periodically to add features or to remedy defects. Contact customer support to obtain information about available firmware versions.

This command supports both non-interactive and interactive modes. If no operands are specified, or if there is any syntax error in the operands, the command will go into the interactive mode and prompt you for input. In the interactive mode, all of the optional operands are presented to the user.

The package list file (that is, plist file) is a binary file which contains specific firmware information such as the release version, time stamp, and platform code, and the names of packages to be downloaded.

For the StorageWorks Core switch, each CP has two partitions of non-volatile storage. The `firmwareDownload` command will always load the image into the secondary partition and then will swap the secondary to be the new primary. After the system successfully boots up from this partition, run `firmwareCommit` to replicate the downloaded image in the primary partition to the secondary partition.

If the previous firmware version is preferred after `firmwareDownload` and `reboot`, but before `firmwareCommit`, then run `firmwareRestore` to restore the old firmware image now saved in the secondary partition.

Description: V4.1.x

Use this command to download switch firmware from a FTP server or from a local (NFS) directory to the switch's non-volatile storage area.

Note: V4.1 supports only FTP protocol for firmware downloads.

The new firmware is in the form of RPM packages with names defined in a pfile. pfile is a binary file which contains specific firmware information (time stamp, platform code, version, etc.) and the names of packages of the firmware to be downloaded. These packages are made available periodically to add features or to remedy defects. Contact customer support to obtain information about available firmware versions.

In the StorageWorks Core switch, this command by default downloads firmware image to both CPs in a rollover mode to prevent disruption to application services. This operation depends on HA support. If HA is not available, a user will still be able to upgrade the CPs one at a time using “-s” option.

The StorageWorks 2 Gb SAN switch and each CP of the StorageWorks Core switchhave two partitions of non-volatile storage areas, a primary and a secondary, to store two firmware images. `Firmwaredownload` will always load the new image into the secondary partition and will swap the secondary partition to be the primary. It will then reboot the CP and activate the new image. Finally, it will perform `firmwarecommit` automatically to copy the new image to the other partition unless “-s” is used.

The command supports both non-interactive and interactive modes. If it is invoked without any command line parameters, or if there is any syntax error in the parameters, the command will go into the interactive mode in which the user is prompted for input.

Note: The default action in V4.1 is a full install instead of an incremental install.

Operands

This command has the following operands:

host	Specify a host server name or IP address; for example, "tower" or "11.22.33.44". The configuration file or pfile is downloaded from this host system. If this operand is not used, the pfile is considered to be accessible through a local directory. This operand is required.
user	Specify a user name for FTP or RSHD server access; for example, "jdoe". This user name is used to gain access to the host. This operand is required.
file (V3.1.x only)	Specify a path and file name; for example, `/pub/dist/v2.6.0`. Absolute path names may be specified using forward slash (/). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts. This operand is required.
pfile (V4.1.x only)	Specify a fully qualified path and file name; for example, `/pub/dist/system.plist`. Absolute path names may be specified using forward slash (/). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts. This operand is required.
passwd	Specify a password. This operand is required, but may be NULL.
-s (V4.1.x only)	Specify this operand to enable Single CP Mode. In the StorageWorks Core switch, this mode enables a user to upgrade a single CP and to select full-install, auto-reboot, and auto-commit. In the StorageWorks 2 Gb SAN switch, this mode enables a user to select full-install, auto- reboot, and auto-commit.
-b (V4.1.x only)	Specify this operand to activate auto-reboot mode. After downloading firmware the system must be rebooted. If this operand is not specified, the user must issue the `reboot` command manually in order to activate the downloaded image. If auto-reboot mode is enabled, the switch reboots automatically after the `firmwareDownload` command has been run.

-n (V4.1.x only)	Specify this operand to de-activate auto-commit mode. By default, after running this command and after `reboot`, the switch will perform a `firmwareCommit` command automatically. When this mode is disabled, the user needs to issue the `firmwareCommit` command manually to replicate the downloaded image from the primary partition to the secondary partition of a CP.
-i (V4.1.x only)	Specify this operand to enable Incremental Install Mode. By default, `firmwareDownload` will do a full install of the whole firmware regardless of what the original firmware version was on the system. In Incremental Install Upgrade Mode the names of packages in pfile are compared to what already installed on the switch and only the packages which are different from those already stored or not on the switch yet are installed.

If no operand is specified the operation becomes interactive and you are prompted for input.

Example

To download the firmware to a V3.1.x switch:

```
Switch:admin> firmwaredownload
Server Name or IP Address [jsmith-sun]: fjones-sun
User Name [jsmith]: fjones
File Name [~jsmith/V3.1]: ~fjones/V3.1
Protocol (RSHD or FTP) [rshd]:
3869708+301460+1119124, csum 6edc
.............................
.............................
writing flash 0 .............................
writing flash 1 .............................
download complete
Switch:admin>
```

To download the firmware to a V4.1.x switch:

```
switch:admin> firmwaredownload
Server Name or IP Address: 11.22.33.44
User Name: foo
File Name: /pub/dist/system.plist
Password: xxxxxx
Full Install (otherwise only install the difference) [Y]:
Do Auto-Commit after Reboot [Y]:
Reboot system after download [N]:
Start to install packages......
dir              ##################################################
terminfo         ##################################################
<output truncated>
glibc            ##################################################
sin              ##################################################
Write kernel image into flash.
file verification SUCCEEDED
Firmwaredownload completes successfully.
```

Errors

The following can cause the download to fail:

- Host is not known to the switch
- Host cannot be reached by the switch
- User does not have permission on host
- The pfile or binary file does not exist on host
- The pfile or binary file is not in the right format
- Package specified in the pfile or binary file doesn't exist
- The RSHD (V3.1.x only) or FTP server is not running on host

See Also

fastboot

reboot

switchReboot

version

firmwaredownloadstatus

Displays the status of a firmware download.

Synopsis

```
firmwaredownloadstatus
```

Availability

Admin

Release

V4.1.x

Description

Use this command to display an event log that records the progress and status of the current `firmwaredownload` command. The event log is created by the current `firmwaredownload` command and is kept until another `firmwaredownload` command is issued. There is a timestamp associated with each event.

In a StorageWorks Core switch, when `firmwaredownloadstatus` is run, the event logs in the two CPs are synchronized. The command can be run from either CP.

Operands

None.

Example

To display the status of a firmware download:

```
switch:admin> firmwaredownloadstatus

[1]: Mon Jan 24 13:32:07 2005
cp0: FirmwareDownload has completed successfully on Standby CP.

[2]: Mon Jan 24 13:32:10 2005
cp0: Standby CP reboots.

[3]: Mon Jan 24 13:34:43 2005
cp0: Standby CP boots up.

[4]: Mon Jan 24 13:34:45 2005
cp0: Standby CP booted up with new firmware.

[5]: Mon Jan 24 13:37:50 2005
cp1: Active CP failed over. Now this CP is becoming Active.

... (output truncated)

[11]: Mon Jan 24 13:49:57 2005
cp1: FirmwareCommit has completed successfully on Active CP.

[12]: Mon Jan 24 13:49:58 2005
cp1: FirmwareDownload has completed successfully.

switch:admin>
```

See Also

firmwarecommit

firmwaredownload

firmwarerestore

firmwareshow

firmwarerestore

Restore old active firmware image.

Synopsis

`firmwarerestore`

Availability

Admin

Release

V4.1.x

Description

Use this command to restore the old active firmware image.

After a `firmwareDownload` and a `reboot`, the downloaded firmware will become active. If you then do not want to commit the firmware, and instead want to restore the old firmware, run `firmwareRestore`. After running `firmwareRestore`, you can run `firmwareDownload` again.

This command will reboot the system and make the old firmware active. After reboot, both active and backup images should be restored to the old firmware.

This command will only take action if the system is booted after a `firmwareDownload`. Otherwise, it will return with an error code.

Operands

None.

Example

To restore old active firmware image:

```
switch:admin> firmwarerestore
Restore Kernel Image...
.............................
No firmware undo is needed
switch:admin>
```

See Also

firmwareCommit
firmwareDownload

firmwareshow

Displays the Fabric OS versions on both partitions of the local and remote CPs.

Synopsis

```
firmwareshow
```

Availability

Admin

Release

V4.1.x

Description

Use this command to display the Fabric OS versions on primary and secondary partitions on the local CP and on the remote CP. This command identifies the status for each CP as Active or Standby, and will also identify the slot number for each CP.

If there is only one CP available, the command displays the Fabric OS versions for the primary and secondary partitions on that CP.

Operands

None.

Example

To display the firmware version of a StorageWorks 2 Gb SAN switch:

```
switch:admin> firmwareshow
Local CP (Slot 5, CP0): Active
       Primary partition:      v4.1.x
       Secondary Partition:    v4.1.x
Remote CP is Non-redundant.
switch:admin>
```

To display the firmware version of a StorageWorks Core switch:

```
switch:admin> firmwareshow
Local CP (Slot 5, CP0): Active
       Primary partition:      v4.1.x
       Secondary Partition:    v4.1.x
Remote CP (Slot 6, CP1): Standby
       Primary partition:      v4.1.x
       Secondary Partition:    v4.1.x
switch:admin>
```

See Also

firmwaredownloadstatus

fporttest

Functional test of F->N, N->F point to point path.

Synopsis

`fporttest` *`[-nframes count][-ports itemlist][-seed payload_pattern][-width pattern_width][-size pattern_size]`*

Availability

Admin

Release

V4.1.x

Description

Use this command to verify the functional operation of the switch by sending els ECHO frames from switch F_Port's transmitter, and receive els ECHO ACC back from N_Port device into F_Port's receiver. This exercises all the switch components from the main board to the SFP, to the fiber cable, to the SFPs (of the N_Port devices and the switch F_Port), and back to the main board.

The cables and SFPs connected should be of the same technology; that is, a short wavelength SFP (switch) port is connected to another short wavelength SFP (device) port using a short wavelength cable; and a long wavelength port is connected to a long wavelength port; and a copper port is connected to a copper port.

Only one frame is transmitted and received at any one time. The port LEDs flicker green rapidly while the test is running.

The test method is as follows:

1. Determine which ports are F_Port
2. Create a ELS_ECHO frame with payload size, data pattern build in, or payload size, data pattern.
3. Transmit frame F via F_Port, with D_ID to the N_Port device.
4. Wait for N_Port device to response ECHO ACC.

5. Compare ECHO data transmitted is equal to the ECHO data received.
6. Repeat step 3 through step 5 for all ports present until:
   a. The number of frames requested is reached,
   b. All ports are marked bad.

You can specify a payload pattern to be used when executing this test. If the pattern is not user specified, then at every 30 pass, a different data type from a palette of seven is used to generate different data pattern to create the frame. The data pattern will be generated based on each data type. Some data types may generate different data pattern on every pass, and other data type may not change the data pattern in every pass. These seven data types will be repeated every 210 pass. The data palette is as follows:

```
1)   CSPAT:       0x7e, 0x7e, 0x7e, 0x7e,...
2)   BYTE_LFSR:   0x69, 0x01, 0x02, 0x05,...
3)   CHALF_SQ:    0x4a, 0x4a, 0x4a, 0x4a,...
4)   QUAD_NOT:    0x00, 0xff, 0x00, 0xff,...
5)   CQTR_SQ:     0x78, 0x78, 0x78, 0x78,...
6)   CRPAT:       0xbc, 0xbc, 0x23, 0x47,...
7)   RANDOM:      0x25, 0x7f, 0x6e, 0x9a,...
```

Operands

This command has the following operands:

-nframes count	Specify the number of times (or number of frames per port) to execute this test. If omitted, the default value used is 10. This operand is optional.
-ports itemlist	Specify the ports to run to test on. If omitted, the test will be executed on all online F_ports in the specified slot. This operand is optional.
-seed payload_pattern	Specify the pattern of the test packets payload. When payload_pattern is set to 0, all seven different data types will be used. This operand is optional.
-width pattern_width	Specify the width of the pattern which user specified. When *payload_pattern* is set to 0x00, *pattern_width* will be ignored. Valid values are: 1 = byte 2 = word 4 = quad This operand is optional.
-size pattern_size	Specify the number of words of the test packets payload. If omitted, the default value is 512. This operand is optional.

Errors: V4.1.x

When it detects failures, the test may report one or more of the following error messages:

```
DATA
INIT
PORT_DIED
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
FTPRT_STATUS_ERR
LESSN_STATUS_ERR
MBUF_STATE_ERR
MBUF_STATUS_ERR
NO_SEGMENT
PORT_ABSENT
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_FRAME_ERR
RXQ_RAM_PERR
STATS
STATS_C3FRX
STATS_FRX
STATS_FTX
TIMEOUT
XMIT
```

Example

To run an fporttest:

```
switch:admin> fporttest -ports 1/0-1/15
Running fPortTest .......
Test Complete: "fporttest" Pass 10 of 10
Duration 0 hr, 0 min & 1 sec (0:0:0:127).
assed.
switch:admin>
```

See Also

itemlist

crossporttest

loopporttest

spinsilk

porttest

fspfShow

Displays FSPF protocol information.

Synopsis

```
fspfShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the Fibre Channel Shortest Path First (FSPF) protocol information, and internal data structures. FSPF is implemented by a single task, called `tFspf`.

The display shows the following fields:

Table 9: Display Fields

Field	Description
version	Version of FSPF protocol.
domainID	Domain number of local switch.
switchOnline	State of the local switch. V4.1.x only.
domainvalid	Domain of the local switch is currently confirmed.
isl_ports	Bit map of all E_Ports.
trunk_ports	Bit map of all the trunk ports. V4.1.x only.
f_ports	Bit map of all the Fx_Ports. V4.1.x only.
seg_ports	Bit map of all the segmented ports. V4.1.x only.
active_ports	Bit map of all the ONLINE ports. V4.1.x only.
minLSArrival	FSPF constant.
minLSInterval	FSPF constant.
LSoriginCount	Internal variable.

Table 9: Display Fields (Continued)

Field	Description
startTime	Start time of tFspf task (milliseconds from boot).
fspfQ	FSPF input message queue.
fabP	Pointer to fabric data structure.
agingTID	Aging timer ID.
agingTo	Aging time out value, in milliseconds.
lsrDlyTID	Link State Record delay timer ID.
lsrDelayTo	Link State Record delay time out value, in milliseconds.
lsrDelayCount	Counter of delayed Link State Records.
ddb_sem	FSPF semaphore ID.
event_sch	FSPF scheduled events bit map.
lsrRefreshCnt	Internal variable.

Operands

None.

Examples

To display FSPF protocol information (V4.1.x example):

```
switch:admin> fspfshow

version         = 2
domainID        = 1
switchOnline    = TRUE
domainValid     = TRUE
isl_ports[0]    = 0x00000000
isl_ports[1]    = 0x74000000
trunk_ports[0]  = 0x00000000
f_ports[0]      = 0x00000000
seg_ports[0]    = 0x00000000
active_ports[0] = 0x00000000
minLSArrival    = 3
minLSInterval   = 5
LSoriginCount   = 0
startTime       = 50222
fspfQ           = 0x1003e640
fabP            = 0x1003e630
agingTID        = 0x1004ca28
agingTo         = 10000
lsrDlyTID       = 0x100507a8
lsrDelayTo      = 5000
lsrDelayCount   = 1
ddb_sem         = 0x1003e6e8

fabP:
event_sch       = 0x0
lsrRefreshCnt   = 0

switch:admin>
```

See Also

bcastShow

mcastShow

topologyShow

uRouteShow

fwAlarmsFilterSet

Enable or disable alarms for Fabric Watch.

Synopsis: V3.1.x

`fwAlarmsFilterSet` *`[alarm-on/off]`*

Synopsis: V4.1.x

`fwAlarmsFilterSet` *`[mode]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to configure alarm filtering for Fabric Watch. By turning off the alarms, all non-environment class alarms are suppressed. By turning on the alarms, all class alarms are generated.

Note: This command requires a Fabric Watch License.

Operands

This command has the following operands:

`alarm-on/off` (V3.1.x only) `mode` (V4.1.x only)	Specify 1 to enable the alarms, 0 to disable the alarms. If no operand is specified, the default value is 0 (alarms are deactivated). This operand is optional.

Example

To enable alarms in Fabric Watch (V3.1.x example):

```
switch:admin> fwalarmsfilterset
Committing configuration...done.
FW: Alarms are disabled
switch:admin> fwalarmsfilterset 1
Committing configuration...done.
FW: Alarms are enabled
switch:admin>
```

To enable alarms in Fabric Watch (V4.1.x example):

```
switch:admin> fwalarmsfilterset
FW: Alarms are disabled
switch:admin> fwalarmsfilterset 1
FW: Alarms are enabled
switch:admin>
```

See Also

fwAlarmsFilterShow

fwAlarmsFilterShow

Displays alarm filtering for Fabric Watch.

Synopsis

```
fwAlarmsFilterShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display whether alarm filtering is enabled or disabled.

Note: This command requires a Fabric Watch License.

Operands

None.

Example

To display the status of alarm filtering in Fabric Watch:

```
switch:admin> fwAlarmsFilterShow
FW: Alarms are enabled

switch:admin> fwAlarmsFilterShow
FW: Alarms are disabled
```

See Also

fwAlarmsFilterSet

fwClassInit

Initialize all classes under Fabric Watch.

Synopsis

```
fwClassInit
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to initialize all classes under Fabric Watch. This command should only be used after installing a Fabric Watch license to enable the licensed classes.

Note: This command requires a Fabric Watch License.

Operands

None.

Example

To initialize all classes under Fabric Watch:

```
switch:admin> fwClassInit
fwClassInit: Fabric Watch is updating...
fwClassInit: Fabric Watch has been updated
switch:admin>
```

See Also

fwConfigReload
fwConfigure
fwShow

fwConfigReload

Reload the Fabric Watch configuration.

Synopsis

```
fwConfigReload
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to reload the Fabric Watch configuration. This command should only be used after downloading a new Fabric Watch configuration file from a host.

Note: This command requires a Fabric Watch License.

Operands

None.

Example

To reload the saved Fabric Watch configuration:

```
switch:admin> fwConfigReload
fwConfigReload: Fabric Watch configuration reloaded.
```

See Also

configUpload
configDownload
fwClassInit
fwConfigure
fwShow

fwConfigure

Displays and modifies the Fabric Watch configuration and status.

Synopsis

```
fwConfigure
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display and modify threshold information for the Fabric Watch configuration. Switch elements monitored by Fabric Watch are divided into classes, which are further divided into areas. In addition, each area can include multiple thresholds.

Note: This command requires a Fabric Watch License.

The Fabric Watch classes and areas are provided in the following list.

Table 10: fwConfigure Fabric Watch Classes and Areas

Class	Area
1 : Environmental class	1 : Temperature 2 : Fan
2 : SFP class	1 : Temperature 2 : RXP 3 : TXP 4 : Current 5 : Voltage

Table 10: fwConfigure Fabric Watch Classes and Areas (Continued)

Class	Area
3 : Port class	1 : Link loss 2 : Sync loss 3 : Signal loss 4 : Protocol error 5 : Invalid words 6 : Invalid CRCS 7 : RXPerformance 8 : TXPerformance 9 : State Changes
4 : Fabric class	1 : E-Port downs 2 : Fabric reconfigure 3 : Domain ID changes 4 : Segmentation changes 5 : Zone changes 6 : Fabric<->QL 7 : Fabric logins 8 : SFP state changes
5 : E-Port class	1 : Link loss 2 : Sync loss 3 : Signal loss 4 : Protocol error 5 : Invalid words 6 : Invalid CRCS 7 : RXPerformance 8 : TXPerformance 9 : State Changes

Table 10: fwConfigure Fabric Watch Classes and Areas (Continued)

Class	Area
6 : F/FL Port (Copper) class (V3.1.x only)	1 : Link loss 2 : Sync loss 3 : Signal loss 4 : Protocol error 5 : Invalid words 6 : Invalid CRCS 7 : RXPerformance 8 : TXPerformance 9 : State Changes
(V3.1.x) 7 : (V4.1.x) 6 : F/FL Port (Optical) class	1 : Link loss 2 : Sync loss 3 : Signal loss 4 : Protocol error 5 : Invalid words 6 : Invalid CRCS 7 : RXPerformance 8 : TXPerformance 9 : State Changes
(V3.1.x) 8 : (V4.1.x) 7 : Alpa Performance Monitor class	1 : Invalid CRCS
(V3.1.x) 9 : (V4.1.x) 8 : End-to-End Performance Monitor class	1 : Invalid CRCS 2 : RXPerformance 3 : TXPerformance

Table 10: fwConfigure Fabric Watch Classes and Areas (Continued)

Class	Area
(V3.1.x) 10 : (V4.1.x) 9 : Filter Performance Monitor class	1 : Customer Define
(V3.1.x) 11 : (V4.1.x) 10 : Security class	1 : Telnet Violations 2 : HTTP Violations 3 : API Violations 4 : RSNMP Violations 5 : WSNMP Violations 7 : MS Violations 8 : Serial Violations 9 : Front Panel Violations 10 : SCC Violations 11 : DCC Violations 12 : Login Violations 13 : Invalid Timestamps 14 : Invalid Signatures 15 : Invalid Certificates 16 : SLAP Failures 17 : SLAP Bad Packets 18 : TS Out of Sync 19 : No-FCS 20 : Incompatible Security DB 21 : Illegal Command
(V3.1.x) 12 : (V4.1.x) 11 : Switch Availability Monitor class	1 : Total Down time 2 : Total Up time 3 : Duration of Occurrences 4 : Fequency of Occurrences 5 : MTBF (Mean Time Between Failure) 6 : MTTF (Mean Time To Failure)

Operands

None.

Example

To display the Fabric Watch configuration and status:

```
switch:admin> fwConfigure

1  : Environment class
2  : SFP class
3  : Port class
4  : Fabric class
5  : E-Port class
6  : F/FL Port (Copper) class
7  : F/FL Port (Optical) class
8  : Alpa Performance Monitor class
9  : End-to-End Performance Monitor class
10 : Filter Performance Monitor class
11 : Security class
12 : Switch Availability Monitor class
13 : quit
Select a class => : (1..13) [13] 1

1 : Temperature
2 : Fan
3 : Power Supply
4 : return to previous page

Select an area => : (1..3) [3] 1

Index ThresholdName                    Status     CurVal
           LastEvent             LastEventTime    LastVal          LastState
=============================================================================
  1    envTemp001                     enabled        32 C
        inBetween    23:04:42 on 10/01/2002        35 C     Normal
  2    envTemp002                     enabled        30 C
        inBetween    23:04:42 on 10/01/2002        32 C     Normal
  3    envTemp003                     enabled        28 C
        inBetween    23:04:42 on 10/01/2002        31 C     Normal

1 : refresh
2 : disable a threshold
3 : enable a threshold
4 : advanced configuration
5 : return to previous page
Select choice => : (1..5) [5]
```

See Also

fwClassInit

fwConfigReload

fwShow

fwFruCfg

Displays or modifies FRU state alert configuration.

Synopsis

```
fwFruCfg
```

Availability

Admin

Release

V4.1.x

Description

Use this command to configure FRU states and actions. Based on these configuration settings Fabric Watch generates action when FRU state changes. To configure e-mail alerts use `fwMailCfg`.

Note: This command requires a Fabric Watch License.

Operands

None.

Example

To change FRU state alert configuration:

```
switch:admin> fwFruCfg
  1  : Slot
  2  : Power Supply
  3  : Fan
  4  : WWN
  5  : Configure All
  6  : Set All to Default
  7 : Quit
  Select an item  => : (1..7) [7] 1
                                          Alarm
Id   Label             Status     State    Action     Freq   TimeBase
=============================================================================
1    Slot #1           enable      48        17         5    Minute
2    Slot #2           enable       8        16         1    Minute
3    Slot #3           enable      16        16         1    Minute
4    Slot #4           enable      48        17         5    Minute


1 : change fru alarm state      5 : change fru status
2 : change fru alarm level      6 : apply fru configuration
3 : change alarm frequency      7 : cancel fru configuration changes
4 : change fru timebase         8 : return to previous page

Select Id => : (1..8) [8] 1
Enter Slot Number : (1..4) [4] 1
Absent-1, Inserted-2, Ready-4
Up-8, On-16, Off-32, Faulty-64
Enter fru alarm state  => : (1..127) [48] 32
                                          Alarm
Id   Label             Status     State    Action     Freq   TimeBase
=============================================================================
1    Slot #1           enable      32        17         5    Minute
2    Slot #2           enable       8        16         1    Minute
3    Slot #3           enable      16        16         1    Minute
4    Slot #4           enable      48        17         5    Minute


1 : change fru alarm state      5 : change fru status
2 : change fru alarm level      6 : apply fru configuration
3 : change alarm frequency      7 : cancel fru configuration changes
4 : change fru timebase         8 : return to previous page
```

See Also

fwMailCfg

fwConfigure

fwHelp

Displays Fabric Watch command information.

Synopsis

```
fwHelp
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display information on commands used to configure Fabric Watch.

Operands

None.

Example

To display a summary of Fabric Watch telnet commands (V3.1.x example):

```
switch:admin> fwHelp

fwAlarmsFilterSet       Configure alarms filtering for Fabric Watch
fwAlarmsFilterShow      Show alarms filtering for Fabric Watch
fwClassInit             Initialize all Fabric Watch classes
fwConfigure             Configure Fabric Watch
fwConfigReload          Reload Fabric Watch configuration
fwSetToCustom           Set boundary & alarm level to custom
fwSetToDefault          Set boundary & alarm level to default
fwShow                  Show thresholds monitored by Fabric Watch
fwMailCfg               Email Alert by Fabric Watch
fwSamShow               Show Switch Availability monitored by Fabric Watch

NOTE: don't run help command after firmwaredownload without reboot.
      It will give you wrong information.

switch:admin>
```

See Also

diagHelp

fwconfigure

fwMailCfg

Configure e-mail alerts in Fabric Watch.

Synopsis

```
fwMailCfg
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display or modify the configuration and status of e-mail alerts in Fabric Watch.

Switch elements monitored by Fabric Watch are divided into Classes. You can configure one email address recipient for the alert messages from each class.

Note: This command requires a Fabric Watch License.

When configuring an e-mail alert for a specific class you must specify the following information:

Mail Server IP address	Specify the IP address of the mail server.
Domain Name	Specify the domain name of the mail server. For example, hp.com.
Mail To	Specify the name of the users who will be notified. The format should be user@domain.com. For example, johndoe@hp.com.

Note: If the switch is rebooted using `switchboot`, `reboot`, or `fastboot`, the e-mail alert is set to disabled and must be re-enabled again.

Operands

None.

Example

To configure an e-mail address recipient for the environmental class in Fabric Watch (V3.1.x example):

```
switch:admin> fwMailCfg
1  : Show Mail Configuration Information
2  : Disable Email Alert
3  : Enable Email Alert
4  : Send Test Mail
5  : Set Mail Address for Email Alert
6  : Quit
Select an item  => : (1..6) [6] 5

    Mail Config  Menu
    ____________________________________
    0  : Environment class
    1  : SFP class
    2  : Port class
    3  : Fabric class
    4  : E-Port class
    5  : F/FL Port (Copper) class
    6  : F/FL Port (Optical) class
    7  : Alpa Performance Monitor class
    8  : End-to-End Performance Monitor class
    9  : Filter Performance Monitor class
    10 : Security class
    11 : Switch Availability Monitor class (SAM)
    12 : quit
Select an item  => : (0..12) [12] 0
Enter Mail Server IP address : [0.0.0.0] 11.22.33.44
Enter Domain Name : [hp.com] hp.com
Mail To: [jonDoe@hp.com] johndoe@hp.com
Committing configuration...done.

Email Alert configuration Succeeded!
1  : Show Mail Configuration Information
2  : Disable Email Alert
3  : Enable Email Alert
4  : Send Test Mail
5  : Set Mail Address for Email Alert
6  : Quit
Select an item  => : (1..6) [6]
```

See Also

fwconfigure
fwclassinit
fwshow
fwconfigreload

fwsamshow

Displays the switch availability monitor information.

Synopsis

```
fwsamshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to displays information about port availability. The information displayed includes: total uptime, total down time, number of faulty occurrences, MTBF (Mean Time Before Failure), and MTTF (Mean Time To Failure) for each port.

Note: This command requires a Fabric Watch License.

Operands

None.

Example

The following example shows the summary information for an StorageWorks 2 Gb SAN switch:

```
switch:admin> fwsamshow

                Total       Total       Number Of                          Total
Port#  Type     UpTime      DownTime    Occurences    MTBF       MTTF      OffTime
                (Percent)   (Percent)    (Times)      (Hours)    (Hours)  (Percent)

=============================================================================
0       E_PORT      89          1            1             1          0         8
1       U_PORT       0          0            0             0          0       100
2       U_PORT       0          0            0             0          0       100
3       U_PORT       0          0            0             0          0       100
4       U_PORT       0          0            0             0          0       100
5       G_PORT       0          0            0             0          0       100
6       U_PORT       0          0            0             0          0       100
7       U_PORT       0          0            0             0          0       100
switch:admin>
```

See Also

switchshow

fwSetToCustom

Set boundary and alarm levels to custom values.

Synopsis

```
fwSetToCustom
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set boundary and alarm levels to custom for all classes and areas for Fabric Watch.

Note: This command requires a Fabric Watch License.

Operands

None.

Example

To set alarm levels to custom values:

```
switch:admin> fwSetToCustom
Committing configuration...done.
```

See Also

fwSetToDefault

fwSetToDefault

Set boundary and alarm levels to the default values.

Synopsis

```
fwSetToDefault
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set boundary and alarm levels to default for all classes and areas for Fabric Watch.

Note: This command requires a Fabric Watch License.

Operands

None.

Example

To set alarm levels to default values:

```
switch:admin> fwSetToDefault
Committing configuration...done.
```

See Also

fwSetToCustom

fwShow

Displays the thresholds monitored by Fabric Watch.

Synopsis

```
fwShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the thresholds monitored by Fabric Watch.

In V3.1.x, if no parameters are entered, a summary of all thresholds is displayed and printed. If a valid threshold name is entered as a parameter, detailed information pertaining only to that threshold is displayed and printed.

In V4.1.x, this command can display a synopsis of thresholds for a particular class or more detailed information for an individual threshold.

Note: This command requires a Fabric Watch License.

The display of `fwshow` for Root user could be different than Admin user. The Root user can see all inactive and active thresholds, but the Admin user can only see active threshold.

Operands

None.

Example

The following in a V3.1.x example:

```
Switch:admin> fwshow
==========================================================================
Name               Label                      Last value
----------------   ------------------------   ----------------------------
envFan001          Env Fan 1                      5880 RPM
envFan002          Env Fan 2                      5910 RPM
envFan003          Env Fan 3                      5880 RPM
envFan004          Env Fan 4                      5970 RPM
envFan005          Env Fan 5                      6060 RPM
envTemp001         Env Temperature 1                33 C
envTemp002         Env Temperature 2                32 C
fabricDI000        Fabric Domain ID                  0 DID Change(s)
fabricED000        Fabric E-port down                0 Down(s)
fabricFL000        Fabric Fabric login               0 Login(s)
fabricFQ000        Fabric Fabric<->QL                0 Change(s)
fabricFR000        Fabric Reconfigure                0 Reconfig(s)
<output truncated>
```

The following is a V4.1.x example:

```
switch:admin> fwShow

1  : Show class thresholds
2  : Detail threshold information
3  : Quit
Select an item  => : (1..3) [3] 2
Enter Threshold Name : [envFan001] envFan002

================================================================================
Name                  Label                              Last value
--------------------  ---------------------------------  -----------------
   Monitored for:       2369 (39 mins)
    Last checked:   19:48:00 on 12/03/1999
     Lower bound:       2000 RPM
     Upper bound:       3400 RPM
     Buffer Size:          3
   Value history:       3013 RPM
     Raw history:       3013 RPM
                        3013 RPM
                        3013 RPM
                        3013 RPM
                        3013 RPM
                        3013 RPM
           Flags: 0x      40 TRIGGERED
    Counter:
      Access via: Function call
         Address: 0x100187dc
        Argument: 0x00000002

        Previous: 0x00000bc5 (3013)
         Current: 0x00000bc5 (3013)

         Events:
           Style: Triggered
             Event 0 occurred 1 time, last at 19:08:31 on 12/03/1999
             Event 1 occurred 80 times, last at 19:47:06 on 12/03/1999
           * Event 5 occurred 1 time, last at 19:08:37 on 12/03/1999

       Callbacks:
         No callbacks are registered.

1  : Show class thresholds
2  : Detail threshold information
3  : Quit
Select an item  => : (1..3) [3] 3
```

See Also

fwClassInit
fwConfigReload
fwConfigure

gbicShow

Displays serial ID GBIC information.

Synopsis: V3.1.x

`gbicShow` *`[portnumber]`*

Synopsis: V4.1.x

`gbicShow` *`[slotnumber][portnumber]`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description: V3.1.x

Use this command to display information about Serial Identification GBICs (also known as module definition “4” GBICs). These GBICs provide extended information that describes the GBICs capabilities, interfaces, manufacturer, and other information.

Use this command with no operand to display a summary of all GBICs in the switch. The summary shows the GBIC type (see `switchShow` for an explanation of the two letter codes) and, for Serial ID GBIC, the vendor name and GBIC serial number.

Use this command with the slot and `portnumber` operand to display detailed information about the Serial ID GBIC in that port.

For Finisar "smart" GBICs, five additional fields are displayed: module temperature, received optical power, transmitted optical power (longwave only), laser diode drive current, and GBIC Voltage.

Description: V4.1.x

Use this command to display information about SFPs.

Note: The current technology in the StorageWorks Core switch, and StorageWorks 2 Gb SAN switch use SFPs instead of GBICs. This command is now replaced by the `sfpshow` command. The command is included in the current Fabric OS for backward compatibility of scripts used by some customers.

SFPs are polled by a background process. The `gbicshow` command retrieves the latest information from cache. The cache values for each SFP are updated when the SFP is hot plugged, when it is removed, or when the Fabric OS polls the SFPs. In the StorageWorks Core switch, if there is a lot of activity on the switch, poll updates may take several minutes.

Use this command with no operand to display a summary of all SFPs in the switch. The summary shows the SFP type (see `switchshow` for an explanation of the two letter codes) and, for Serial ID SFP, the vendor name and SFP serial number.

Use this command with the *`slotnumber`* and *`portnumber`* operands to display detailed information about the SFP in that port.

Operands

This command has the following operands:

`slotnumber` (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
`portnumber`	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

Example

The following V3.1.x example shows first GBIC summary information:

```
switch:admin> gbicshow
port  0: id (sw) Vendor: AGILENT          Serial No: A00128928
port  1: id (sw) Vendor: AGILENT          Serial No: A00128983
port  2: id (sw) Vendor: AGILENT          Serial No: A00128966
port  3: id (sw) Vendor: AGILENT          Serial No: A00128929
port  4: id (sw) Vendor: AGILENT          Serial No: A00128988
port  5: id (sw) Vendor: AGILENT          Serial No: A00127279
port  6: id (sw) Vendor: AGILENT          Serial No: A00127399
port  7: id (sw) Vendor: AGILENT          Serial No: A00127264
switch:admin>
```

See Also

switchShow

h

Displays shell history.

Synopsis

`h`

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to view the shell history. The shell history mechanism is similar to the UNIX Korn shell history facility. It has a built-in line editor similar to UNIX vi that allows previously typed commands to be edited. The command `h` displays the 20 most recent commands typed into the shell; old commands fall off the top as new ones are entered.

To edit a command, press **ESC** to access edit mode, then use vi commands. The **ESC** key switches the shell to edit mode. The **Enter** key gives the line to the shell from either editing or input mode.

Basic vi commands:

k	get the previous shell command
j	get the next command
h	move the cursor left
l	move the cursor right
a	append
i	insert
x	delete
u	undo

Operands

None.

Example

To display previous shell commands:

```
switch:admin> h
1 version
2 switchShow
3 portDisable 2
4 portEnable 2
5 switchShow
```

See Also

None.

haDisable

Disable the High Availability feature in the switch.

Synopsis

```
haDisable
```

Availability

Admin

Release

V4.1.x

Description

Use this command to disable the High Availability feature in the Switch. If the HA feature is already disabled, this command does nothing.

Operands

None.

Example

To disable the High Availability feature:

```
switch:admin> haDisable
Disabling HA ...
Done.
```

See Also

haEnable

hafailover

hashow

hadump

Displays High Availability feature information.

Synopsis

```
hadump
```

Availability

All users.

Release

V4.1.x

Description

Use this command to display information about the status of the High Availability feature in the Switch. This command displays the following information:

- Local CP state (slot number and CP id);
- Remote CP state (slot number and CP id);
- High Availability Enabled/Disabled
- Heartbeat Up/Down
- Health of Standby CP. The Health of Standby CP can show one of the following values:

Healthy	The Standby CP is running and the background health diagnostic has not detected any errors.
Failed	The Standby CP is running, but the background health diagnostic has discovered a problem with the blade. The logs should be checked to determine the appropriate repair action. Fail-over will be disabled until the Standby CP can be repaired.

- HA Synchronization Status. The HA Synchronization Status field can show one of the following values:

HA State Synchronized	The system is currently fully synchronized. If a fail-over were necessary at this time, the fail-over would be non-disruptive.

HA State Not In Sync	The system is unable to synchronize the two CPs, due to the Standby CP being faulty or another system error. If a fail-over were to take place at this time, the Standby CP would be rebooted, and the fail-over will be disruptive.

- IP and Fibre Channel addresses configured for the switch.

Operands

None.

Example

To displays High Availability feature information:

```
switch:admin> hadump
Dump HA Data ...
Local CP (Slot 5, CP0): Active
Remote CP (Slot 6, CP1): Standby, Healthy
HA enabled, Heartbeat Up, HA State not in sync
<output truncated>
```

See Also

haenable

haFailover

haShow

haEnable

Enable the High Availability feature in the switch.

Synopsis

```
haEnable
```

Availability

Admin

Release

V4.1.x

Description

Use this command to enable the High Availability (HA) feature in the switch. If the HA feature is already enabled, this command is ignored.

Operands

None.

Example

To enable the High Availability feature in the switch:

```
switch:admin> haEnable
Enabling HA ...
Done.
```

See Also

haDisable

haFailover

haShow

haFailover

Forces the failover mechanism so that the Standby CP becomes the Active CP.

Synopsis

```
haFailover
```

Availability

Admin

Release

V4.1.x

Description

Use this command to force the failover mechanism to occur so that the Standby CP becomes the Active CP. Because `haFailover` results in CP reboot, a warning message and a confirmation are displayed. If the user answers positively, then the failover takes place.

On a StorageWorks Core switch, when HA synchronization is enabled and the CPs are in sync, if a failover is initiated, the port traffic light will not flash during the failover, even while traffic is continuing to flow.

Operands

None.

Example

To force the failover of the active CP to the standbyCP in the switch:

```
switch:admin> hafailover
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby, Failed
HA enabled, Heartbeat Up,  HA State Not in Sync

Warning: This command is being run on a control processor(CP) based system.
If the above status does not indicate  HA State synchronized then this
operation will cause the active CP to reset. This will cause disruption to
devices attached to both switch 0 and switch 1 and will require that existing
telnet sessions be restarted. To just reboot a logical switch on this system,
use command switchreboot(1M) on the logical switch you intend to reboot.

Are you sure you want to reboot the active CP [y/n]? Y
```

See Also

haDisable

haEnable

haShow

haShow

Displays control processor (CP) status.

Synopsis

```
haShow
```

Availability

Admin

Release

V4.1.x

Description

Use this command to display the control processor status, which includes:

- Local CP state (slot number and CP id)
- Remote CP state (slot number and CP id)
- High Availability Enabled/Disabled
- Heartbeat Up/Down
- Health of Standby CP. The Health of Standby CP can show one of the following values:

Healthy	The Standby CP is running and the background health diagnostic has not detected any errors.
Failed	The Standby CP is running, but the background health diagnostic has discovered a problem with the blade. The logs should be checked to determine the appropriate repair action. Fail-over will be disabled until the Standby CP can be repaired.

- HA Synchronization Status. The HA Synchronization Status field can show one of the following values:

HA State Synchronized	The system is currently fully synchronized. If a fail-over were necessary at this time, the fail-over would be non-disruptive.

HA State Not In Sync	The system is unable to synchronize the two CPs, due to the Standby CP being faulty or another system error. If a fail-over were to take place at this time, the Standby CP would be rebooted, and the fail-over will be disruptive.

Operands

None.

Example

To display control processor (CP) status:

```
switch:admin> haShow
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby
HA Enabled, Heartbeat Up, HA State not in sync
```

See Also

haDisable

haEnable

haFailover

haShow

hasyncstart

Enable the HA state synchronizing process.

Synopsis

```
hasyncstart
```

Availability

Admin

Release

V4.1.x

Description

Use this command to re-activate the HA State Synchronizing process.

Operands

None.

Example

To enable the HA state synchronizing process:

```
switch:admin> hasyncstart
HA State synchronization has started
switch:admin> hashow
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby, Healthy

HA enabled, Heartbeat Up, HA State synchronized
switch:admin>
```

See Also

hasyncstop

haFailover

haShow

hasyncstop

Disable the HA state synchronizing process.

Synopsis

```
hasyncstop
```

Availability

Admin

Release

V4.1.x

Description

Use this command to temporarily de-activate the HA Synchronization process.The next fail-over that takes place after may be disruptive as this command will deactivate the synchronization process.

Operands

None.

Example

To disable the HA state synchronizing process:

```
Switch:admin> hasyncstop
Stop synchronize 0x228 (fabos):  Switch: 0, Info FSS_ME-FORCELOG, 4, HA State
out of sync!
```

See Also

hasyncstart

haFailover

haShow

help

Displays help information for commands.

Synopsis

`help [command]`

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command without an operand to display an alphabetical list of commands. At the end of the list are additional commands that display groups of commands; for example, `diagHelp` displays a list of diagnostic commands.

The list shows only commands that are available to the current user; this can vary according to:

- Login user level
- License key
- Switch model

To access help information for a specific command, enter the command name as an operand.

Operands

This command has the following operand:

command	Specify the command name, with or without quotation marks. This operand is optional.

Example

The first example provides help information on the login command. The second example provides help information on the configure command.

```
switch:admin> help login
...
switch:admin> help "configure"
...
```

See Also

diagHelp

licenseHelp

routeHelp

historyLastShow

Displays last history log record.

Synopsis

```
historyLastShow
```

Availability

All users.

Release

V4.1.x

Description

Use this command to display the contents of the last history log record. A history record contains three lines of information:

The first line of each record contains the following data sets:

- Object type: CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (World Wide Name), or UNKNOWN.
- Object number: Slot *<nn>* (for blades), Unit *<nn>* (for everything else).
- Event: Inserted, Removed, or Invalid.
- Time of the event: at *<Dow> <Mon> <dd> <hh:mm:ss> <yyyy>*

The second and third lines of a record each contain one data set, preceded by its name:

HP Part Number: *<xx-yyyyy-zz>* or Unknown

HP Serial Number: *<xxxxxxxxxxxx>* or Unknown

Operands

None.

Example

To display the last history record:

```
switch12K:admin> historyLastShow

POWER SUPPLY  Unit 2    Inserted at Tue Aug 14 15:52:10 2001
HP Part Number:    60-0001536-02
HP Serial Number:  1013456800

Records:  11
```

See Also

historyShow

historymode

Displays or sets the mode of the history log.

Synopsis

```
historymode [mode]
```

Availability

Admin

Release

V4.1.x

Description

Use this command to display or set the mode (as rotating or first-in) of the history buffer.

The history log buffer can have two modes of accepting new entries after it has reached its maximum size:

- Rotating mode: new messages overwrite the oldest messages in the log.
- First-in mode: once the log is full, all additional logs are discarded, so that the first set of logs to fill the buffer is preserved.

This command enables you to display the current history log mode and change between them. It also enables you to clear the history log buffer whenever the mode is changed.

This command, with no operand, displays the current history mode value.

This command, with an operand specified, sets the history mode to the new value.

Operands

This command has the following operands:

mode	Specify *rot* for a rotating buffer, or *fi* for First-in mode. This operand is optional.

Example

The following command sequence changes the history mode to first-in from rotating:

```
switch:admin> historymode rot
History Mode is: Rotating.
```

See Also

historyshow

historyLastShow

historyShow

Displays the history log.

Synopsis

```
historyShow
```

Availability

All users.

Release

V4.1.x

Description

Use this command to display the history log. Each history record contains three lines of information:

1. The first line of each record contains the following data sets:
   - Object type: CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (World Wide Name), or UNKNOWN.
   - Object number: Slot *<nn>* (for blades), Unit *<nn>* (for everything else).
   - Event: Inserted, Removed, or Invalid.
   - Time of the event: at *<Dow> <Mon> <dd> <hh:mm:ss> <yyyy>*
2. The second contains one data set, HP Part Number:
   - HP Part Number: *<xx-yyyyy-zz>* or Unknown
3. The third line contains one data set, HP Serial Number:
   - HP Serial Number: *<xxxxxxxxxxxx>* or Unknown

Operands

None.

Example

To display the entire contents of the history file:

```
switch:admin> historyShow

FAN  Unit 3             Removed at Tue Aug 14 10:05:37 1970
HP Part Number:        20-123456-12
HP Serial Number:      1013456800

POWER SUPPLY  Unit 1    Inserted at Tue Aug 14 10:52:10 1970
HP Part Number:        60-0001536-02
HP Serial Number:      Unknown

FAN  Unit 3             Inserted at Tue Aug 14 10:23:45 2001
HP Part Number:        20-123456-12
HP Serial Number:      1013456800

WWN  Unit 1             Inserted at Tue Aug 14 11:03:45 2001
HP Part Number:        40-0000031-03
HP Serial Number:      1013456800

 . . .

SW BLADE  Slot 3        Removed at Tue Aug 14 12:10:09 2001
HP Part Number:        60-0001532-03
HP Serial Number:      1013456800

CP BLADE  Slot 6        Removed at Tue Aug 14 13:45:07 2001
HP Part Number:        60-0001604-02
HP Serial Number:      FP00X600128

SW BLADE  Slot 3        Inserted at Tue Aug 14 13:53:40 2001
HP Part Number:        60-0001532-03
HP Serial Number:      1013456800

CP BLADE  Slot 6        Inserted at Tue Aug 14 13:59:50 2001
HP Part Number:        60-0001604-02
HP Serial Number:      FP00X600128

POWER SUPPLY  Unit 2    Inserted at Tue Aug 14 15:52:10 2001
HP Part Number:        60-0001536-02
HP Serial Number:      1013456800

Records:  11
```

See Also

historyLastShow

i

Displays task summary.

Synopsis

```
i [Process ID]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

This command displays information of all of the processes or of a specific process if a process ID is supplied. One line is displayed per process. The following table explains the fields displayed with this commands.

Table 11: Command Field Description

Field	Description
F	Process Flags: ALIGNWARN 001 print alignment warning messages STARTING 002 being created EXITING 004 getting shut down PTRACED 010 set if ptrace (0) has been called TRACESYS 020 tracing system calls FORKNOEXEC 040 forked but didn't exec SUPERPRIV 100 used super-user privileges DUMPCORE 200 dumped core SIGNALED 400 killed by a signal

Table 11: Command Field Description (Continued)

Field	Description
S	Process state codes: D uninterruptible sleep (usually IO) R runnable (on run queue) S sleeping T traced or stopped Z a defunct ("zombie") process
UID	The effective user ID number of the process.
PID	The process ID of the process.
PPID	The process ID of the parent process.
C	Processor utilization for scheduling.
PRI	Priority number of the process. Higher numbers mean lower priority.
NI	Nice value used in priority computation.
ADDR	Memory address of the process.
SZ	The total size of the process in virtual memory in pages.
WCHAN	The address of an event for which process is sleeping (if blank, the process is running.).
TTY	The controlling terminal of the process (? is printed for no controlling terminal).
TIME	The cumulative execution time for the process.
CMD	The command name of the process.

Operands

This command has the following operand:

Process ID Specify the task name or task ID for the task to be displayed.

Example

To display information about process name tSRL:

```
switch:admin> i tSRL
NAME        ENTRY       TID     PRI   STATUS      PC       SP     ERRNO  DELAY
-------- ------------ -------- --- ---------- -------- -------- ------- -----
tSRL     _nssrl_svr   11f9be20 170 PEND       1088a160 11f9c1b0       0     0
switch:admin>
```

See Also

diagHelp

routeHelp

ifModeSet

Set the link operating mode for a network interface.

Synopsis

`ifModeSet ["interface"]`

Availability

Admin

Release

V3.1.x and V4.1.x

Description: V3.1.x

Use this command to set the link operating mode for a network interface.

The "interface" argument is of the form *<name><physical-unit>*, where *<name>* is the name of the network interface and *<physical-unit>* is the instance of that interface, for example, "fei0."

The network interfaces available on the system can be listed with the `ifshow` command.

The command begins by prompting the current operating mode and continues prompting other possible operating modes until one has been selected or until all the possibilities have been displayed. An operating mode is confirmed with a "y" or "yes" at a prompt. If an operating mode is selected different from the current mode, the change is saved and the command exits.

Note: Rebooting is required for the changes of this command to take effect.

Changing the link mode is not supported for all network interfaces and not necessarily for all Ethernet network interfaces. At present, this command is only functional for "fei" interfaces.

Exercise care when using this command. Forcing the link to an operating mode not supported by the network equipment to which it is attached may result in an inability to communicate with the system via its Ethernet interface.

Description: V4.1.x

Use this command to set the link operating mode for a network interface.

An operating mode is confirmed with a “y” or “yes” at the prompt. If the operating mode selected differs from the current mode, the change is saved and the command exits.

Changing the link mode is not supported for all network interfaces or for all ethernet network interfaces. This command is only functional for the “eth0” interface.

Exercise care when using this command. Forcing the link to an operating mode not supported by the network equipment to which it is attached may result in an inability to communicate with the system through its ethernet interface.

For dual-CP systems, the `ifmodeset` command affects the CP that you are currently logged into. To set the link operating mode on the active CP you must issue this command on the active CP. To set the link operating mode on the standby CP you must issue this command on the standby CP. During failover the link operating mode is retained separately for each CP, since the physical links may be set to operate in different modes.

Operands

This command has the following operand:

interface	For V3.1.x, specify the name of the interface, enclosed in quotation marks. For V4.1.x, specify the name of the interface. You may specify the name with quotation marks, but using them is not required.

Example

To advertise all modes of operation, follow this scenario for the `ifModeSet` command:

```
switch:admin> ifmodeset “fei0”
Auto-negotiate (yes, y, no, n): [no]
100 Mbps / Full Duplex (yes, y, no, n): [no]
100 Mbps / Half Duplex (yes, y, no, n): [no]
10 Mbps / Full Duplex (yes, y, no, n): [no]
10 Mbps / Half Duplex (yes, y, no, n): [no] yes
Committing configuration...done.switch:admin>
```

To force 10 Mbps Half Duplex, follow this scenario for the `ifmodeset` command:

```
switch:admin> ifModeSet eth0

Exercise care when using this command.  Forcing the link to an operating mode
not supported by the network equipment to which it is attached may result in
an inability to communicate with the system through its ethernet interface.

It is recommended that you only use this command from the serial console port.

Are you sure you really want to do this? (yes, y, no, n): [no] y
Proceed with caution.
Auto-negotiate (yes, y, no, n): [no] n
Force 100 Mbps / Full Duplex (yes, y, no, n): [no]
Force 100 Mbps / Half Duplex (yes, y, no, n): [no]
Force 10 Mbps / Full Duplex (yes, y, no, n): [no]
Force 10 Mbps / Half Duplex (yes, y, no, n): [no] y
Committing configuration...done.
switch:admin>
```

See Also

ifModeShow

ifShow

ifModeShow

Displays the link operating mode for a network interface.

Synopsis

`ifModeShow ["interface"]`

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the link operating mode for a network interface.

The network interfaces available on the system can be listed with the `ifshow` command.

Note: The link operating mode is not changeable for all network interfaces and not necessarily for all Ethernet network interfaces. For those interfaces in which this is not supported, the output for the link mode is "Not applicable."

Operands

This command has the following operand:

interface	For V3.1.x, specify the name of the interface. The interface value must be enclosed in quotation marks. The "interface" argument is of the form *<name><physical-unit>*, where *<name>* is the name of the network interface and *<physical-unit>* is the instance of that interface, for example, "fei0." For V4.1.x, specify the name of the interface. You may specify the name with quotation marks, but using them is not required.

Example

To display the link operating mode for the "fei0" Ethernet interface:

```
switch:admin> ifModeShow "fei0"
fei (unit number 0):
     Link mode: Auto-negotiate
switch:admin>
```

See Also

ifModeSet

ifShow

ifShow

Displays network interface information.

Synopsis

`ifShow ["ifName"]`

Availability

All users.

Release

V3.1.x

Description

Use this command to display network interface status. If the operand `ifName` is provided, only that interface is displayed. If `ifName` is omitted, all interfaces are displayed. Each switch has three interfaces:

"ei" or "fei" is the 10BaseT or 100BaseT Ethernet interface
"lo" is the loopback interface
"fc" is the Fibre Channel interface

The "fc" interface is displayed for switches running IP over Fibre Channel that have been assigned an FC-IP address. For each interface selected, the following information is displayed:

- Flags (for example, loopback, broadcast, arp, running, debug)
- Internet address
- Broadcast address
- Netmask and subnetmask
- Ethernet address
- Route metric
- Maximum transfer unit
- Number of packets received and sent
- Number of input errors, output errors, and collisions

Operands

This command has the following operand:

ifName	Specify the name of an interface, in quotation marks. This operand is optional.

Example

To display Ethernet interface information for a switch with a 10BaseT connection:

```
switch:admin> ifShow "ei"
ei (unit number 0):
     Flags: (0x63) UP BROADCAST ARP RUNNING
     Internet address: 192.168.1.65
     Broadcast address: 192.168.1.255
     Netmask 0xffffff00 Subnetmask 0xffffff00
     Ethernet address is 00:60:69:00:00:8a
     Metric is 0
     Maximum Transfer Unit size is 1500
     42962 packets received; 127 packets sent
     0 input errors; 0 output errors
     7 collisions
```

See Also

ipAddrSet

ipAddrShow

interfaceShow

Displays FSPF interface information.

Synopsis: V3.1.x

```
interfaceShow [portnumber]
```

Synopsis: V4.1.x

```
interfaceShow [slotnumber/][portnumber]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display data structures associated with FSPF interfaces (E_Ports) on the switch.

There are two data structures that save data associated with FSPF interfaces:

- The permanently allocated Interface Descriptor Block (IDB).
- The neighbor data structure. This data structure is allocated when a switch port becomes an E_Port. The neighbor data structure contains all the information relating to the switch that is connected to an adjacent switch.

This command displays the content of both data structures, if they have been allocated.

Use this command without specifying a port number to display the interface information for all ports on the switch (including non E_Ports).

The following fields are displayed:

idbP	Pointer to IDB.
nghbP	Pointer to neighbor data structure.
ifNo	Interface number.

masterPort	Port number of the trunk master port, if present, of the trunk group this port is a part of.
defaultCost	The default cost of sending a frame over the ISL connection to this interface.
cost	Cost of sending a frame over the ISL connected to this interface. A value of 1000 indicates a 1 Gb/s link. A value of 500 indicates a 2 Gb/s link.
delay	Conventional delay incurred by a frame transmitted on this ISL. A fixed value required by the FSPF protocol.
lastScn	Type of the last State Change Notification received on this interface.
lastScnTime	Time the last State Change Notification was received on this interface.
upCount	Number of times this interface came up, with respect to FSPF.
lastUpTime	Last time this interface came up.
downCount	Number of times this interface went down.
lastDownTime	Last time this interface went down.
downReason	Type of last State Change Notification that caused this interface to go down.
iState	Current state of this interface. The state can be UP or DOWN. An interface in DOWN state does not have an allocated neighbor data structure and cannot be used to route traffic to other switches.
state	Current state of this interface. This E_Port is used to route traffic to other switches only if the state is "NB_ST_FULL."
nghbCap	Neighbor capabilities. Should be 0.
nghbId	Domain ID of the neighbor (adjacent) switch.
idbNo	IDB number. Should be equal to portnumber
remPort	Port number on the remote switch connected to this port.
nflags	Internal FSPF flags.
initCount	Number of times this neighbor was initialized, without the interface going down.
&dbRetransList	Pointer to the database retransmission list.
&lsrRetransList	Pointer to the Link State Records (LSR) retransmission list.
&lsrAckList	Pointer to the Link State Acknowledgements (LSA) retransmission list.

inactTID	Inactivity timer ID.
helloTID	Hello timer ID.
dbRtxTID	Database retransmission timer ID.
lsrRtxTID	LSR retransmission timer ID.
inactTo	Inactivity time out value, in milliseconds. When this time out expires, the adjacency with the neighbor switch is broken and new paths are computed to all possible destination switches in the fabric.
helloTo	Hello time out value, in milliseconds. When this time out expires, a Hello frame is sent to the neighbor switch through this port.
rXmitTo	Retransmission time out value, in milliseconds. It is used to transmit topology information to the neighbor switch. If no acknowledgement is received within `rXmitTo`, frame is retransmitted.
nCmdAcc	Total number of commands accepted from the neighbor switch. Number includes Hellos, Link State Updates (LSUs) and Link State Acknowledgements.
nInvCmd	Number of invalid commands received from the neighbor switch. Usually commands with an FSPF version number higher than the one running on the local switch.
nHloIn	Number of Hello frames received from the neighbor switch.
nInvHlo	Number of invalid Hello frames (Hello frames with invalid parameters) received from the neighbor switch.
nLsuIn	Number of LSUs received from the neighbor switch.
nLsaIn	Number of LSAs received from the neighbor switch.
attHloOut	Number of attempted transmissions of Hello frames to the neighbor switch.
nHloOut	Number of Hello frames transmitted to the neighbor switch.
attLsuOut	Number of attempted transmissions of LSUs to the neighbor switch.
nLsuOut	Number of LSUs transmitted to the neighbor switch.
attLsaOut	Number of attempted transmissions of LSAs to the neighbor switch.
nLsaOut	Number of LSAs transmitted to the neighbor switch.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

When no slot number and port number are specified, this command displays the interface information for all ports on the switch (including non E_Ports).

Examples

To display FSPF interface information:

```
switch:admin> interfaceShow 4/0

idbP         = 0x10f61f40

Interface 4 data structure:
nghbP        = 0x10f61d90
ifNo         = 4
cost         = 1000
delay        = 1
lastScn      = 5
lastScnTime  = Mar 29 12:57:52.833
upCount      = 2
lastUpTime   = Mar 29 12:57:52.833
downCount    = 1
lastDownTime = Mar 29 12:57:47.566
downReason   = 2
iState       = UP

Type <CR> to continue, Q<CR> to stop:
< sample output truncated >
```

See Also

portShow
switchShow

iodReset

Turn off the In-order Delivery (IOD) option.

Synopsis

```
iodReset
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to turn off the IOD option. The IOD option is turned off by default. If the IOD option was turned on using `iodSet`, this command can be used to turn it off again. Setting the IOD option to its default value will result in fast re-routing after a fabric topology change.

This command may cause out-of-order delivery of frames during fabric topology changes.

Note: This command should not be used in HP configurations.

Operands

None.

Examples

To turn off the IOD option:

```
switch:admin> iodshow

IOD is set

switch:admin> iodreset
done.
switch:admin> iodshow

IOD is not set

switch:admin>
```

See Also

iodSet

iodShow

iodSet

Enable the In Order Delivery (IOD) option.

Synopsis

```
iodSet
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enforce in order delivery of frames during a fabric topology change.

In a stable fabric, frames are always delivered in order, even when the traffic between switches is shared among multiple paths. However, when topology changes occur in the fabric (for instance, a link goes down), traffic is rerouted around the failure. When topology changes occur, generally, some frames are delivered out of order. This command insures that frames are not delivered out-of-order, even during fabric topology changes.

The default behavior is for the IOD option to be off. HP configurations require that IOD be set to a 1 to ensure in order delivery of frames.

This command should be used with care, because it can cause a delay in the establishment of a new path when a topology change occurs. Only if there are devices connected to the fabric that do not tolerate occasional out of order delivery of frames, should this command be used.

Operands

None.

Examples

To turn on the IOD option:

```
switch:admin> iodSet
Committing configuration...done.
switch:admin>
```

See Also

iodReset

iodShow

iodShow

Displays the In Order Delivery (IOD) option setting.

Synopsis

```
iodShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display whether the IOD option is enabled or disabled.

Operands

None.

Example

To display the current setting of the IOD option:

```
switch:admin> iodShow
IOD is not set
switch:admin>
```

See Also

iodSet

iodReset

ipAddrSet

Set the IP Address details for a switch or Control Processor.

Synopsis: V3.1.x

```
ipAddrSet
```

Synopsis: V4.1.x

```
ipAddrSet [option]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set the Ethernet and Fibre Channel IP addresses on the switch.

Note: The *option* operand is only available on the StorageWorks Core switch. This operand is not available on the StorageWorks 2 Gb SAN switch.

Parameters: V3.1.x

For V3.1.x, use this command to set the Ethernet and Fibre Channel IP and Subnetmask addresses. You are also prompted to set the Gateway IP Address. The option operand is not available in V3.1.x.

In V3.1.x, you are prompted to set the following values:

Ethernet IP Address	Set the Ethernet IP address of the switch.
Ethernet Subnetmask	Set the Ethernet subnetmask IP of the switch.
Fibre Channel IP Address	Set the Fibre Channel address of the switch.

Fibre Channel Subnetmask	Set the Fibre Channel subnetmask of the switch.
Gateway Address	Set the gateway IP address for the switch.

Parameters: V4.1.x

For a StorageWorks Core switch, you must set values for both logical switches and both CP cards. Use the *option* operand to select the logical switch or CP where you want to configure an IP address. The *option* operand is only available for the StorageWorks Core switch. If the *option* operand is not specified for a StorageWorks Core switch, the command becomes interactive.

Each Logical switch has:

- Ethernet IP Address
- Ethernet Subnetmask
- Fibre Channel IP Address
- Fibre Channel Subnetmask

Each CP has:

- Ethernet IP Address
- Ethernet Subnetmask
- Host Name
- Gateway IP Address

The default values for hostname, ipaddress, subnet address (for CP only), mask (for switch only), and gateway address (for CPs only) are:

- sw0 = hostname SW12000_1, ip 10.77.77.77, mask 255.0.0.0
- sw1 = hostname SW12000_2, ip 10.77.77.76, mask 255.0.0.0
- cp0 = hostname cp0, ip 10.77.77.75, subnet 255.0.0.0, gateway 0.0.0.0
- cp1 = hostname cp1, ip 10.77.77.74, subnet 255.0.0.0, gateway 0.0.0.0

Entering Values and Saving Changes

After each prompt the current value is shown. You may:

- Press **Enter** to retain the current value
- Enter an IP address in conventional dot notation
- Enter `none`

- Press **Ctrl-C** to cancel changes
- Press **Ctrl-D** to accept changes and end input

The final prompt allows you to set the new IP addresses immediately. Enter `Y` to set new addresses immediately; enter `N` to delay the changes until the next switch reboot. Entering `Y` closes the telnet session.

A change to these values issues a domain address format RSCN; see FC-FLA for a description of RSCNs.

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operand:

option — Specify which option you would like to configure. This operand is only available for the StorageWorks Core switch. Valid options are as follows:

- 0 sets the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask of logical switch 0.
- 1 sets the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask of logical switch 1.
- 2 sets the Ethernet IP address, Ethernet subnetmask, gateway IP address, and hostname of CP0.
- 3 sets the Ethernet IP address, Ethernet subnetmask, gateway IP address, and hostname of CP1.

If no operand is specified the command becomes interactive.

Example

To set the IP address details for a switch (V3.1.x example):

```
switch:admin> ipAddrSet
Ethernet IP Address [0.0.0.0]: 192.168.166.148
Ethernet Subnetmask [0.0.0.0]: 255.255.255.0
Fibre Channel IP Address [0.0.0.0]: 192.168.58.135
Fibre Channel Subnetmask [0.0.0.0]: 192.168.166.134
Gateway IP Address [0.0.0.0]: 192.168.166.135
Committing configuration...Done...
switch:admin>
```

To set the IP address details for logical switch number 1 (V4.1.x example):

```
switch:admin> ipaddrset 1
Ethernet IP Address [10.77.77.77]: 192.168.166.148
Ethernet Subnetmask [10.77.77.76]: 255.255.255.0
Fibre Channel IP Address [0.0.0.0]: 192.168.58.135
Fibre Channel Subnetmask [0.0.0.0]: 192.168.166.134
Gateway IP Address [0.0.0.0]:
IP address being changed...
Committing configuration...Done.
switch:admin>
```

See Also

ipAddrShow

ipAddrShow

Displays the IP address for a switch or Control Processor.

Synopsis: V3.1.x

```
ipAddrShow
```

Synopsis V4.1.x

```
ipAddrShow [option]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the Ethernet and FC IP addresses configured in the system.

Note: The *option* operand is only available on the StorageWorks Core switch. This operand is not available on the StorageWorks 2 Gb SAN switch.

Information: V3.1.x

This command shows the Ethernet IP Address, Ethernet Subnetmask, Fibre Channel IP Address, Fibre Channel Subnetmask, and Gateway IP address for the switch.

The FC IP Address shows “none” if the switch is not configured to run IP over Fibre Channel. Note that all Fibre Channel ports on a switch have the same IP address and subnet mask.

All IP addresses are displayed in conventional dot (.) notation or by the special value “none.” Subnet Masks show “none” if IP sub netting is not in effect.

Information: V4.1.x

For a switch, this command displays the following details: Ethernet IP Address, Ethernet Subnetmask, Fibre Channel IP Address, and Fibre Channel Subnetmask.

For a CP, this command displays the following details: Ethernet IP Address, Ethernet Subnetmask, Hostname and Gateway IP address.

In the StorageWorks Core switch the CPs communicate to each other through an Ethernet in the backplane. When the *option* operand is specified as a 4, the fixed Backplane IP addresses for CP0 and CP1 are also shown.

Use the *option* operand to specify the logical switch or CP you want to view. If the option operand is not specified, then the command becomes interactive.

The default values for hostname, ipaddress, subnet address (for CP only), mask (for switch only), and gateway address (for CPs only) are:

- sw0 = hostname SW12000_1, ip 10.77.77.77, mask 255.0.0.0
- sw1 = hostname SW12000_2, ip 10.77.77.76, mask 255.0.0.0
- cp0 = hostname cp0, ip 10.77.77.75, subnet 255.0.0.0, gateway 0.0.0.0
- cp1 = hostname cp1, ip 10.77.77.74, subnet 255.0.0.0, gateway 0.0.0.0

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operand:

option — Specify the option you would like to view. This operand is only available for theStorageWorks Core switch. Valid option values are:

- 0 means display information for switch0.
- 1 means display information for switch1.
- 2 means display information for CP0.
- 3 means display information for CP1.
- 4 means display information all IP addresses in the system.

If no operand is specified the command becomes interactive.

Example

To display the IP configuration details for the switch (V3.1.x example):

```
switch:admin> ipAddrShow
Ethernet IP Address: 11.22.33.44
Ethernet Subnetmask: 55.66.77.88
Fibre Channel IP Address: none
Fibre Channel Subnetmask: none
Gateway Address: 12.34.56.78
switch:admin>
```

To display the IP address for logical switch number 0 (V4.1.x example):

```
switch:admin> ipAddrShow 0
Ethernet IP Address: 11.22.33.44
Ethernet Subnetmask: 55.66.77.88
Fibre Channel IP Address: none
Fibre Channel Subnetmask: none
switch:admin>
```

See Also

ipAddrSet

islshow

Displays ISL information.

Synopsis

```
islshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the current connections and status of the ISL of each port on this switch. The WWN where the ISL is connected to, the speed of the connection, and whether this ISL is trunked, are displayed.

Operands

None.

Example

To display the ISL connections for the switch:

```
switch:admin> islshow
1:  3 ->  5   10:00:00:60:69:20:3a:a5    Cylon_13  sp: 2G  bw: 1G
2:  6 -> 11   10:00:00:60:69:04:11:25    Cylon_22  sp: 2G  bw: 2G
3: 11 ->  6   10:00:00:60:69:04:11:25    Cylon_22  sp: 2G  bw: 2G
```

See Also

switchshow

itemlist

List parameter syntax and grammar information.

Synopsis

```
<item_list> = <element> | <element> <white> <item_list>
<element> = <item> | <item> - <item>
<item> = <num> | <slot> [ <white> ] / [ <white> ] <num>
<slot> = <num>
<num> = <hex> | <int>
<int> = <int> <digit> | <digit>
<hex> = 0x <hex digit> | <hex> <hex digit>
<digit> = 0|1|2|3|4|5|6|7|8|9
<hex digit> = <digit> |A|B|C|D|E|F|a|b|c|d|e|f
<white> = *["\t\f\r ,"]
```

Release

V4.1.x

Description

All kernel diagnostics have at least one item list parameter to specify which ports to test. The normal default value for this parameter is to select everything.

Note: This is not a command, rather it is a common parameter to many commands. To view the help page for this command type help `itemlist`.

If you wish to restrict the items to be tested to a smaller set the parameter value is an item list with the following characteristics:

- It is a comma separated list of items.
- Each item in the list may be a single element or a range of elements separated with a "-" character.

- white space like spaces, and tab stops are skipped.
- ranges using “-” can be mixed with individual values.
- Each item may be proceeded by an optional slot number and “/”. for example, “0,3,4-6,1”, “0,1,3,4,5,6”, “0 3 4 - 6 1" will all select items 0, 1, 3, 4, 5, 6 and 7.

Besides the syntax rules, there are also some grammatical restrictions on the slot numbers:

- Once specified a slot selection will apply to all following items to the right of the slot selection until the next slot selection or the end of the item list. For example, “1/0 - 15" and “1/0 - 1/15” are equivalent.
- If no slot number is specified then User port lists will be specified by area number. For instance “0, 16, 32" and “1/0, 2/0, 3/0” specify the same ports on a 16 port/blade system. On that same system “1/0, 16, 32" is not a legal list. Even though it is legal syntax the ports do not exist.
- If no slot number is specified then all lists except user port lists will use the default slot 0.
- No list type except for user port lists may specify multiple conflicting slot numbers. For instance “1/0, 2/0, 3/0” is a legal user port list but is not legal for any other type of list.
- In the case of conflicting settings within a single itemlist an error will be generated as described above. In the case of multiple item list parameters, the last one on the command line will override any previous settings.

The exact type of list varies depending on the test and the parameter but the most common are Blade ports and User ports. A list of Blade ports is most commonly used by the ASIC level tests such as cmitest or turboramtest and represents which ports on the current blade (specified with --slot # parameter) will be tested. A list of User ports is used by the higher level tests such as spinsilk or crossporttest to specify which user accessible external ports within the current switch (selected during telnet login) will be tested. When specified in an item list user ports may be specified by either the area portion of the ports fibre channel address or with slot/port notation. For non-bladed systems the port number on the silkscreen is the area number so the two notations are identical.

The exact type of list required for any input parameter may be determined with the `diagcommandshow <test>` command. For item list parameters the parameter type will be PT_LIST and the list type will be one of the following:

Table 12: Object Descriptions

Type	Grouping	Description
BPORTS	Blade	Blade ports, internal and external ports.
UPORTS	Switch	User ports, ports with external connections.
QUADS	Blade	Quadrants, group of (normally 4) ports.
CHIPS	Blade	Chips, Asics within a blade.
MINIS	Blade	Mini switches.
SLOTS	Chassis	Slots.
INDEX	N/A	Anything.

Operands

None.

See Also

backport
camtest
centralmemorytest
cmemretentiontest
cmitest
crossporttest
diagcommandshow
portloopbacktest
portregtest
spinsilk
sramretentiontest

killtelnet

Terminate an open telnet session.

Synopsis

```
killtelnet
```

Availability

Admin

Release

V4.1.x

Description

Use this command to terminate an open telnet session. The killtelnet command is an interactive menu driven command. Upon invocation, it lists all the current telnet and serial port login sessions. It lists information such as the session number, login name, the idle time, the IP address of the connection, and the time stamp of when the login session was opened. A prompt is then displayed where you can specify the session number of the connection you wish to terminate.

Operands

None.

Example

To terminate an open telnet connection:

```
switch:admin> killtelnet

Collecting login information....Done

List of telnet sessions (3 found)
_____________________________________________________________________________
Session No   USER         TTY           IDLE        FROM              LOGIN@
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    0        root0        ttyS0         1:17m       -                 5:13pm
    1        admin0       pts/0        16.00s       192.168.130.29    6:29pm
    2        admin0       pts/1         3.00s       192.168.130.29    6:31pm
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

 Enter Session Number to terminate (q to quit) 1
Collecting process information... Done.

    You have opted to terminate the telnet session:-
        logged in as "admin0 ", from "192.168.130.29 "
        since " 6:29pm" and has been inactive for "16.00s ",
        the current command executed being: "-rbash ".
        The device entry is: "pts/0 ".


    This action will effectively kill these process(es):-
                USER        PID ACCESS COMMAND
/dev/pts/0      root      12868 f....  login
                root      12869 f....  login
                root      12877 f....  rbash
Please Ensure (Y/[N]): y
killing session....  Done!

Collecting login information....Done


List of telnet sessions (2 found)
_____________________________________________________________________________
Session No   USER         TTY           IDLE        FROM              LOGIN@
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    0        root0        ttyS0         1:17m       -                 5:13pm
    1        admin0       pts/1         7.00s       192.168.130.29    6:31pm
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

 Enter Session Number to terminate (q to quit) q}
switch:admin>
```

Note: The list of open sessions displayed with killtelnet includes the user's current session. Make sure you do not kill your own telnet session.

See Also

None.

ledtest

Run LED diagnostics on a switch blade and WWN.

Synopsis

```
ledtest
```

Availability

Admin

Release

V4.1.x

Description

Use this command to run a suite of LED tests.

Operands

None.

Example

To test the LEDs:

```
switch:admin> ledtest
Disabling switch
launch ledScript.tmp script in background (PID is 17974)
Enter <cr> to ABORT
```

See Also

portledtest

licenseAdd

Add license key to switch.

Synopsis

`licenseAdd "license"`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to add license keys to the system.

Some features of the switch and of the fabric to which it is connected are optional licensed products. Without a license installed for such products, the services are not available.

A license key is a string of approximately 16 upper and lower case letters and numbers. Case is significant.

The license must be entered into the system exactly as issued. If mistyped, the license may be accepted, but licensed products will not function. After entering the license, use the `licenseShow` command to check for correct function. If no licensed products are shown, then the license is invalid.

After entering a license, the licensed product is available immediately and the system does not need to be rebooted. The exception is a QuickLoop only system; these must be rebooted after adding a fabric license to allow fabric logins. For a trunking license to become effective, the trunk ports need to be refreshed using the commands `portdisable` and `portenable` or the switch must be refreshed using the commands `switchdisable` and `switchenable`.

Operands

This command has the following operand:

license	Specify a license key in quotation marks. This operand is required.

Example

To add a license key to the switch:

```
switch:admin> licenseAdd "bQebzbRdScRfc0iK"
adding license key "bQebzbRdScRfc0iK"
done.
```

See Also

licenseHelp

licenseIdShow

licenseRemove

licenseShow

portdisable

portenable

switchdisable

switchenable

licenseHelp

Commands used to administer license keys.

Synopsis

`licenseHelp`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display a list of the commands used to administer license keys.

Operands

None.

Example

To display license commands:

```
switch:admin> licenseHelp

licenseAdd       Add a license key to this switch
licenseIdShow    Show system license ID
licenseRemove    Remove a license key from this switch
licenseShow      Show current license key
switch:admin>
```

Note: The `licenseIdShow` command is available in V4.1.x only.

See Also

licenseAdd
licenseIdShow
licenseRemove
licenseShow

licenseIdShow

Displays system license ID.

Synopsis

```
licenseIdShow
```

Availability

All users.

Release

V4.1.x

Description

Use this command to display the license ID of StorageWorks 2 Gb SAN switch or a StorageWorks Core switch chassis.

Some features of the switch and the fabric are optional, licensed products. Without a license installed for such products, the services provided by these features are not available.

For the StorageWorks Core switch0 a single license enables both logical switches to use these products. That is, the chassis is assigned a license ID from which a license is generated.

Such licenses are locked and are only functional on the specific system for which they were issued.

This command displays to standard output the system license ID used for both generating and validating licenses on the system. The license ID format is 8 pairs of hexadecimal values separated by colons. Each hexadecimal value is between 00 (0) and FF (255).

Note: While the format of this identifier may be similar or identical to other identifiers in the system, no inferences should be made about the relationships between them as they are subject to change independent of one another.

Operands

None.

Example

To display the license ID:

```
switch:admin> licenseIdShow
a4:f8:69:33:22:00:ea:18
```

See Also

licenseAdd

licenseHelp

licenseRemove

licenseShow

licenseRemove

Remove the license key from a switch.

Synopsis

`licenseRemove "license"`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to remove an existing license key from a switch. The existing license key must be entered exactly as shown by `licenseShow`, including case.

When the key has been entered, use the licenseShow command to verify that the key has been removed and the licensed product uninstalled.

After removing a license key, the switch must be rebooted. With no license key, `licenseshow` displays "No licenses."

Operands

The following operand is required:

license	Specify the license key in quotation marks. This operand is required.

Example

To remove a license key from the switch:

```
switch:admin> licenseRemove "bAaAabRdScRfc0iK"
removing license key "bAaAabRdScRfc0iK"
Committing configuration...done.
For license to take effect, Please reboot switch now....
```

See Also

licenseAdd
licenseHelp
licenseIdShow
licenseShow

licenseShow

Displays current license keys.

Synopsis

`licenseShow`

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display current license keys along with a list of licensed products enabled by these keys. The message `No license installed on this switch` is displayed when no licenses are installed.

Operands

None.

Example

To display the installed license keys on a switch:

```
switch:admin> licenseshow
beQRRcQzeQcfRSSE:
    Web license
ccySQc9yeddzTRa:
    Zoning license
Rbeebe9Re9Scffcw:
    Fabric license
R9becSccQUAcfd5:
    Fabric Watch license
S99zcSeRdSTAA0dN:
    QuickLoop license
switch:admin>
```

See Also

licenseAdd
licenseHelp
licenseIdShow
licenseRemove

linkCost

Set or print the FSPF cost of a link.

Synopsis: V3.1.x

`linkCost` *`[portnumber][, cost]`*

Synopsis: V4.1.x

`linkCost` *`[slotnumber/][portnumber][, cost]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set or display the cost of an Inter-Switch Link (ISL). The cost of a link is a dimensionless positive number. It is used by the FSPF path selection protocol to determine the path that a frame takes going from the source to the destination switch. The chosen path is the path with minimum cost. The cost of a path is the sum of the costs of all the ISLs traversed by the path. The cost of a path is also known as the "metric."

FSPF supports load sharing over a number of equal cost paths.

Every ISL has a default cost that is inversely proportional to the bandwidth of the ISL. For a 1Gb per second ISL, the default cost is 1000. For a 2Gb per second ISL, the default cost is 500.

All currently active ISLs have an additional suffix of E_PORT attached to their interface numbers. If the link has a static cost assigned to it, then the link cost for that link has a suffix of STATIC attached to its link cost.

This command changes the actual link cost only; it does not affect the default cost. The `interfaceShow` command displays both the default and the actual cost.

If no operands are specified, the command displays the actual cost of all the ISLs in the (logical) switch. Specify the *[slotnumber/]portnumber* operand to view the cost of that specific port. Specify *[slotnumber/]portnumber* and *cost* operands to set the cost of a specific ISL.

Setting the cost to zero removes a static cost from the database and reverts the cost of the link to its default value.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify the port to display or set the FSPF cost of a link. Valid values for port number vary depending on the switch type. This operand is optional.
cost	Specify the new cost of the link connected to the specified port number. This operand is optional.

If no operands are specified, the current values for all ports on the (logical) switch are displayed.

Examples

To display the cost of a link, and reset the cost:

```
switch:admin> linkcost

          Interface       Cost
     ----------------------------------
            0             500
            1             500
            2             500
            3             500
            4             500
            5             500
            6             500
            7  (E_PORT)   500

switch:admin>
```

See Also

interfaceShow

LSDbShow

topologyShow

uRouteShow

login

Log in as a new user.

Synopsis

```
login
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to log in to the switch with another user name and password, without first logging out from the original session. If the user was originally connected using a telnet or rlogin session, that session is left open.

This command allows you to access commands that you cannot access at your current user level.

Operands

None.

Example

To log in as the Admin:

```
switch:user> login
login: admin
Password: xxxxxx
switch:admin>
```

See Also

logout

logout

Log out from a shell session.

Synopsis

```
logout
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to log out from a shell session. Remote login connections are closed, local serial connections return to the login prompt.

The command `exit` is accepted as synonym for `logout`, as is a **Ctrl-D** typed at the beginning of a line.

Note: If you close a session by clicking the "X" in the upper right hand corner, the window closes but the session stays open until it times out. Trying to open another session before the time-out has completed causes an error message to display.

Operands

None.

Example

To log out from an rlogin session:

```
switch:admin> logout
Connection to host lost.
```

See Also

login

loopPortTest

Tests the L_port M->M path on a loop.

Synopsis: V3.1.x

`loopPortTest` *[passcount, port_number, payload_pattern, pattern_width]*

Synopsis: V4.1.x

`loopporttest` *[--slot number][-nframes count][-ports itemlist][-seed payload_pattern][-width pattern_width]*

Availability:

Admin

Release

V3.1.x and V4.1.x

Description:

Use this command to verify the functional operation of the switch by sending frames from port M's transmitter, and looping the frames back using an external fiber cable, including all the devices on the loop, into port M's receiver. This exercises all the switch components from the main board to the SFP to the fiber cable to the SFPs (of the devices and the switch) and back to the main board.

The cables and SFPs connected should be of the same technology: that is a short wavelength SFP (switch) port should be connected to another short wavelength SFP (device) port using a short wavelength cable; and a long wavelength port is connected to a long wavelength port; and a copper port is connected to a copper port.

Only one frame is transmitted and received at any one time. The port LEDs flicker green rapidly while the test is running.

The test method is as follows:

1. Determine which ports are L-ports.
2. Enable ports for cabled loopback mode.

3. Create a frame F of data size (1024 bytes).
4. Transmit frame F via port M, with D_ID to the FL port (ALPA = 0).
5. Pick up the frame from port M, the FL port.
6. Check if any of the 8 statistic error counters are non-zero:

   ```
   ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out,
   BadOrdSet, DiscC3.
   ```

7. Check if the transmit, receive or class 3 receiver counters are stuck at some value.
8. Check if the number of frames transmitted is not equal to the number of frames received.
9. Repeat step 3 through step 8 for all ports present until:
   a. The number of frames requested is reached.
   b. All ports are marked bad.

You can specify a payload pattern to be used when executing this test. If the pattern is not user specified, then at every 30 pass, a different data type from a palette of seven is used to generate different data pattern to create the frame. The data pattern will be generated based on each data type. Some data types may generate different data pattern on every pass, and other data type may not change the data pattern in every pass. These seven data types will be repeated every 210 pass. The data palette is as follows:

```
1)   CSPAT:       0x7e, 0x7e, 0x7e, 0x7e,...
2)   BYTE_LFSR:   0x69, 0x01, 0x02, 0x05,...
3)   CHALF_SQ:    0x4a, 0x4a, 0x4a, 0x4a,...
4)   QUAD_NOT:    0x00, 0xff, 0x00, 0xff,...
5)   CQTR_SQ:     0x78, 0x78, 0x78, 0x78,...
6)   CRPAT:       0xbc, 0xbc, 0x23, 0x47,...
7)   RANDOM:      0x25, 0x7f, 0x6e, 0x9a,...
```

Operands

This command has the following operands:

passcount (V3.1.x only)	Specify the number of times (or number of frames per port) to execute this test. If omitted, the default value used is 0xfffffffe (or almost infinite for practical purposes) as passCount.
port_number (V3.1.x only)	Specify the port to run to test on. If omitted, the test will be executed on all online L-ports

payload_pattern (V3.1.x only)	Specify the pattern of the test packets payload.
pattern_width (V3.1.x only)	Specify the width of the pattern which user specified. Valid values are: 1 = byte 2 = word 4 = quad
--slot number (V4.1.x only)	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number. The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are switch cards. On each switch card, there are 16 ports counted from the bottom, 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15). This operand is not required for switches that do not have slots.
-nframes count (V4.1.x only)	Specify the number of times (or number of frames per port) to execute this test. The default value is 10.
-ports itemlist (V4.1.x only)	Specify a list of user ports to test. By default all the user ports in the current slot are tested. Refer to `itemlist` for more information on selecting ports.
-seed payload_pattern (V4.1.x only)	Specify the seed pattern of the test packets.
-width pattern_width (V4.1.x only)	Specify the width of the test pattern. Valid values include: 1 for byte 2 for word 3 for quad This operand is optional.

Example

To run this command 100 times on port 8 (V3.1.x example):

```
switch:admin> loopporttest 100, 8, 0xaa55, 2

Configuring L-port 7 to CableLoopback Port........done.
Will use pattern: aa55  aa55  aa55  aa55  aa55  aa55  aa55  aa55

Running Loop Port Test ........ passed.

Configuring Loopback L-port(s) back to normal L-port(s)........done.
value = 0
switch:admin>
```

To perform a loopback port test (V4.1.x example):

```
switch:admin> loopporttest -ports 1/0-1/15

Running Loop Port Test .......
Test Complete: "loopporttest" Pass 10 of 10
Duration 0 hr, 0 min & 1 sec (0:0:0:127).
passed.
```

Errors

Only one frame is transmitted and received at any time. When the test is running, the port LEDs flicker green rapidly. When this command detects a failure, one or more of the following error messages are displayed:

- For V3.1.x:

  ```
  DIAG-INIT
  DIAG-PORTDIED
  DIAG-XMIT
  DIAG-TIMEOUT
  DIAG-ERRSTAT
  DIAG-STATS
  DIAG-PORTWRONG
  ```

- For V4.1.x:

  ```
  DATA
  INIT
  PORT_DIED
  EPI1_STATUS_ERR
  ERR_STAT
  ERR_STATS
  ERR_STATS_2LONG
  ERR_STATS_BADEOF
  ```

```
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
FTPRT_STATUS_ERR
LESSN_STATUS_ERR
MBUF_STATE_ERR
MBUF_STATUS_ERR
NO_SEGMENT
PORT_ABSENT
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_FRAME_ERR
RXQ_RAM_PERR
STATS
STATS_C3FRX
STATS_FRX
STATS_FTX
TIMEOUT
XMIT
```

See Also

camtest
centralmemorytest
cmemretentiontest
cmitest
crossporttest
itemlist
portloopbacktest
portregtest
ramtest
spinsilk
sramretentiontest

LSDbShow

Displays the FSPF Link State Database.

Synopsis

`LSDbShow [domain]`

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display a link state database record for switches in the fabric.

There are two data structures - the permanently allocated Link State Database Entry and the Link State Record (LSR) that are allocated when a switch is connected to the fabric. The LSR for domain N describes the links between the switch with domain number N and its neighbor switches. For a link to be reported in the LSR, the neighbor for that link must be in `NB_ST_FULL` state.

This command displays the content of both data structures, if the LSR is present.

Without operands, this command displays the whole Link State Database.

The display shows the following fields:

Table 13: LSDbShow Display Fields

Field	Description
Domain	Domain number described by this LSR. A (self) keyword after the domain number indicates LSR describes the local switch.
lsrP	Pointer to LSR.
earlyAccLSRs	Number of LSRs accepted even though they were not sufficiently spaced apart.
ignoredLSRs	Number of LSRs not accepted because they were not sufficiently spaced apart.

Table 13: LSDbShow Display Fields (Continued)

Field	Description
lastIgnored	Last time an LSR was ignored.
installTime	Time this LSR was installed in the database, in seconds since boot.
lseFlags	Internal variable.
uOutIfs	Internal variable
uPathCost	Internal variable.
uOldHopCount	Internal variable.
uHopsFromRoot	Internal variable.
mOutIfs	Internal variable.
parent	Internal variable.
mPathCos	Internal variable.
mHopsFromRoot	Internal variable.
lsAge	Age, in seconds, of this LSR. An LSR is removed from the database when its age exceeds 3600 seconds.
reserved	Reserved for future use.
type	Type of the LSR. Always 1.
options	Always 0.
lsId	ID of this LSR. It is identical to the domain number.
advertiser	ID (domain number) of the switch that originated this LSR.
incarn	Incarnation number of this LSR.
length	Total length (in bytes) of this LSR. Includes header and link state information for all links.
chksum	Checksum of total LSR, with exception of lsAge field.
linkCnt	Number of links in this LSR. Each link represents a neighbor in NB_ST_FULL state.
flags	Always 0.
LinkId	ID of this link. It is the domain number of the switch on the other side of the link.
out port	Port number on the local switch.
rem port	Port number of the port on the other side of the link.

Table 13: LSDbShow Display Fields (Continued)

Field	Description
cost	Cost of this link. The default cost for a 1 Gb/s link is 1000.
costCnt	Always 0.
type	Always 1.

Operands

This command has the following operand:

domain	Specify the domain number of the LSR to be displayed. This operand is optional.

Examples

To display the Link State Record for the local switch:

```
switch:admin> lsdbshow

Domain = 7 (self), Link State Database Entry pointer = 0x103946a0
lsrP              = 0x1035bb30
earlyAccLSRs      = 1
ignoredLSRs       = 0
lastIgnored       = Never
installTime       = 0x4f20a (324106)
lseFlags          = 0xa
uOutIfs           = 0x0
uPathCost         = 0
uOldHopCount      = -1161889074
uHopsFromRoot     = 0
mOutIfs           = 0x20
parent            = 0x4
mPathCost         = 2000
mHopsFromRoot     = 2

Link State Record:
Link State Record pointer = 0x1035bb30
lsAge             = 138
reserved          = 0
type              = 1
options           = 0x0
lsId              = 7
advertiser        = 7
incarn            = 0x80000217
length            = 92
chksum            = 0x2fdd
linkCnt = 4,      flags = 0x0

switch:admin>
```

See Also

interfaceShow

nbrStateShow

mcastShow

Displays multicast routing information.

Synopsis

`mcastShow` *`[group_ID]`*

Availability

All users.

Release

V3.1.x

Description

Use this command to display the multicast routing information, as it is known by the FSPF path selection and routing task, for all ports in the switch. The multicast routing information indicates, for each multicast group, all the ports that are members of that group; that is, ports that are able to send and receive multicast frames on that group.

The multicast routing information is shown for all the multicast groups, or for a specific group if a group ID is supplied.

Normally, an F_Port or FL_Port is a member of the multicast group only if it has joined the group using the Alias Server protocol. On the other hand, E_Ports that are part of the multicast group are selected by the multicast path selection protocol. They are chosen in a way that prevents multicast routing loops.

The multicast paths are active for all the multicast groups at all times, regardless of whether a multicast group contains any members.

The multicast routing information is shown as a set of bit maps. Each bit in the bit map represents a port, with the least significant bit representing port 0. A bit set to 1 indicates that a port is part of the multicast distribution tree.

The following fields are displayed:

Table 14: Group Fields

Groups Fields	Multicast Group ID
Member Ports	Bit map of all ports in the multicast tree for that multicast group.
Member ISL Ports	Bit map of all E_Ports in the multicast tree for that multicast group.
Static ISL Ports	Reserved. It should be all zeroes.

Operands

This command has the following operand:

group_ID	Specify the multicast group to be displayed. This operand is optional.

Examples

To display multicast routing information:

```
switch:admin> mcastShow 5
Group   Member Ports    Member ISL Ports        Static ISL Ports
-----------------------------------------------------------------
5       0x00000000        0x00000000              0x00000000
```

See Also

bcastShow

portRouteShow

memshow

Displays the amount of free and used memory in switch.

Synopsis: V3.1.x

```
memshow
```

Synopsis: V4.1.x

```
memshow [ -b | -k | -m ]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display free and used memory on the system as well as the shared memory and buffers used by the kernel. By default the memory usage is displayed in bytes.

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operands:

-b	Specify this operand to display memory usage in bytes.
-k	Specify this operand to display memory usage in kilobytes.
-m	Specify this operand to display memory usage in megabytes.

By default the memory usage is displayed in bytes.

Example

To view the memory usage in a StorageWorks Core switch:

```
switch:admin> memshow
status   bytes    blocks   avg block  max block
------ --------- -------- ---------- ----------
current
free    22187312       19    1167753   22179008
alloc    5311888     4258       1247          -
cumulative
alloc  314330064  5666735         55          -
switch:admin>
```

See Also

savecore

mscapabilityshow

Displays the service support capability.

Synopsis

```
mscapabilityshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to query a fabric for service support capability. This command provides information on what services are supported fabric wide.

The following capabilities are shown:

- **Bit 0: Basic Fabric Configuration Service Supported.**
  This bit displays the fabric capability to support Management Server. This service is available on all switches. This service is described in the FC-GS MS specification.
- **Bit 1: Platform Service Supported.**
  This bit displays the fabric capability to support the Management Server Platform Service. If the service is supported, you can enable it through the **msplmgmtactivate** command. This service is described in the FC-GS MS specification.
- **Bit 2: Topology Discovery Service Supported.**
  This bit displays the fabric capability to support the Management Server Topology Discovery Service. If the service is supported, you can enable it through the `mstdenable "all"` command. This service is described in the FC-GS MS specification.
- **Bit 3: Unzoned Name Service Supported.**
  This bit displays the fabric capability to support the Unzoned Name Server. This service is described in the FC-GS MS specification.

- **Bit 4: Fabric Zone Service Supported.**
  This bit displays the fabric capability to support the Fabric Zone Service. This service is described in the FC-GS MS specification.
- **Bit 5: Fabric Lock Service Supported.**
  This service is not currently supported in switches, and defaults to 0. This service is described in the FC-GS MS specification.
- **Bit 6: Time Service Supported.**
  This bit displays the fabric capability to support the Time Service. For more information refer to the `tsclockserver` command. This service is described in the FC-GS MS specification.
- **Bit 7: RSCN Small Payload Supported.**
  This bit displays the fabric capability to support the RSCN Small Payload used by Name Server.
- **Bit 8: Reliable Commit Service (RCS) Supported.**
  The Reliable Commit Service (RCS) is an enhanced fabric wide commit service used by Security, Zoning, and Management Server.

To read the capability, the hexadecimal value must be converted into binary. The binary value is read from right to left. A value of 1 means the switch is capable of supporting a given service, a value of 0 means the switch is not capable of supporting that service. For example, a capability value of `0x0000019f` would correspond to the following values:

Capability 8 7654 3210

Binary Value 1 1001 1111

In the above example, only Bit 5, Fabric Lock Service, and Bit 6, Time Service are not supported switch.

Operands

None.

Example

To display Management Server capability on a fabric:

```
switch:admin> mscapabilityshow

Switch WWN                  Capability  Switch Name
=======================     ==========  ===========
10:00:00:60:69:90:03:f0     0x0000019f  "switch"*
10:00:00:60:69:90:24:f0     0x0000019f  "switch123"
10:00:00:60:69:90:31:f0     0x0000008f  "switch321"

     Capability Bit Definitions:
         Bit 0: Basic Fabric Configuration Service Supported.
         Bit 1: Platform Service Supported.
         Bit 2: Topology Discovery Service Supported.
         Bit 3: Unzoned Name Service Supported.
         Bit 4: Fabric Zone Service Supported.
         Bit 5: Fabric Lock Service Supported.
         Bit 6: Time Service Supported.
         Bit 7: RSCN Small Payload Supported.
         Bit 8: Reliable Commit Service(RCS) Supported.
         Others: Reserved.

Done.
switch:admin>
```

See Also

msplmgmtactivate

msplmgmtdeactivate

msplatshow

msplcleardb

mstdenable

mstddisable

mstdreadconfig

msConfigure

Configure the Management Server.

Synopsis

```
msConfigure
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display and configure parameters used to access the Management Server. The Management Server allows a storage area network (SAN) management application to retrieve and administer fabric and interconnect elements such as switches. It is located at the Fibre Channel address, FFFFFAh.

If the Access Control List (ACL) is empty (this is the default value), the Management Server is accessible to all systems connected in-band to the fabric. To restrict access, specify the World Wide Name (WWN) for one or more management applications; access is then restricted to those WWNs. Up to 16 maximum WWNs are supported in ACL.

The ACL is implemented on a per switch basis and should be configured on the switch to which the management application station is directly connected.

This command is interactive and provides the following choices:

0 Done (with the administration)

1 Displays the Access Control List (ACL)

2 Add member based on its Port/Node WWN

3 Delete member based on its Port/Node WWN

If a change is made, you are prompted to save the changed ACL to non-volatile memory. The saved ACL is restored on future reboot.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To display the Management Server access control list:

```
switch:admin> msConfigure

0   Done
1   Display the access list
2   Add member based on its Port/Node WWN
3   Delete member based on its Port/Node WWN
select : (0..3) [1]

MS Access List consists of (5): {
 20:01:00:60:69:00:60:10
 20:02:00:60:69:00:60:10
 20:03:00:60:69:00:60:10
 20:02:00:60:69:00:60:03
 20:02:00:60:69:00:60:15

0   Done
1   Display the access list
2   Add member based on its Port/Node WWN
3   Delete member based on its Port/Node WWN
select : (0..3) [1]  0

done ...
switch:admin>
```

See Also

msCapabilityShow
msPlMgmtActivate
msPlMgmtDeactivate
msPlatShow
msPlClearDB
msTdDisable
msTdEnable
msTdReadConfig

msPlatShow

Displays the Management Server Platform database.

Synopsis

```
msPlatShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display information from the Management Server Platform database. The display shows the Platform name and associated attributes of each Platform object in the database.

Platform service is available in firmware v2.3 and above. Lower level firmware releases do not support it.

Operands

None.

Example

To display the Management Server Platform database for a fabric:

```
switch:admin> msPlatShow
-------------------------------------------------------------
Platform Name: [9] "first obj"
Platform Type: 5 : GATEWAY
Number of Associated M.A.: 1
Associated Management Addresses:
  [35] "http://java.sun.com/products/plugin"
Number of Associated Node Names: 1
Associated Node Names:
  10:00:00:60:69:20:15:71
-------------------------------------------------------------
Platform Name: [10] "second obj"
Platform Type: 7 : HOST_BUS_ADAPTER
Number of Associated M.A.: 1
Associated Management Addresses:
  [30] "http://java.sun.com/products/1"
Number of Associated Node Names: 2
Associated Node Names:
  10:00:00:60:69:20:15:79
  10:00:00:60:69:20:15:75
```

See Also

msCapabilityShow

msPlMgmtActivate

msPlMgmtDeactivate

msPlClearDB

msPlClearDB

Clear the Management Server Platform database on all switches in the fabric.

Synopsis

```
msPlClearDB
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command enables an Admin user to clear the entire Management Server Platform database on all switches in the fabric. Since this operation is non-recoverable (once issued, the database will be erased), it should not be used unless it is intended to resolve a database conflict between two joining fabrics or to establish an entire new fabric with an empty database.

Platform service is available in firmware v2.3 and above. Lower level firmware releases do not support it.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To clear the Management Server Platform database on all switches in the fabric:

```
switch:admin> msplcleardb
This will erase MS Platform Service Database in the entire fabric.

Would you like to continue this operation? (yes, y, no, n): [no] y

Request to MS Platform DB Clear operation in progress.....

*Fabric-wide MS Platform DB Clear operation in progress.....
switch:admin>
```

See Also

msPlMgmtDeactivate

msPlatShow

msCapabilityShow

msPlMgmtActivate

msPlMgmtActivate

Activate the Management Server Platform service on all switches in the fabric.

Synopsis

```
msPlMgmtActivate
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command enables an Admin user to activate the Management Server Platform service on all switches in the fabric. HP recommends that you run the `msCapabilityShow` command before issuing this command. If any switch within the fabric is not capable of handling the Platform service, the `msPlMgmtActivate` command is rejected. When this command is issued, all the switches in the fabric will have the Platform service ENABLED.

Once activated, the activation is saved to the non-volatile storage of each switch, so after a reboot, a switch will boot up with Platform service ENABLED. By default, the Platform service is DISABLED.

Platform service is available in firmware v2.3 and above. Lower level firmware releases do not support it.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To activate Platform service on all switches in the fabric (V4.1.x example):

```
switch:admin> msplmgmtactivate
Request to activate MS Platform Service in progress......
*Completed activating MS Platform Service in the fabric!
switch:admin>
```

See Also

msPlMgmtDeactivate
msPlatShow
msCapabilityShow
msPlClearDB

msPlMgmtDeactivate

Deactivate the Management Server Platform service on all switches in the fabric.

Synopsis

```
msPlMgmtDeactivate
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to deactivate the Platform service on all switches in the fabric. This command deactivates the Platform service of each switch in the fabric and commits the changes to the non-volatile storage of each switch.

Once deactivated, even in the event of a reboot, the switch will initialize with the Platform service DISABLED. By default, the Platform service is DISABLED.

Platform service is available in firmware v2.3 and above. Lower level firmware releases do not support it.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To deactivate the Platform service on all switches in the fabric:

```
switch:admin> msplmgmtdeactivate

MS Platform Service is currently enabled.

This will erase MS Platform Service configuration information as well as
database in the entire fabric.

Would you like to continue this operation? (yes, y, no, n): [no] y

Request to deactivate MS Platform Service in progress......

*Completed deactivating MS Platform Service in the fabric!
switch:admin>
```

See Also

msPlatShow

msCapabilityShow

msPlMgmtActivate

msPlClearDB

msTdDisable

Disable the Management Server Topology Discovery service.

Synopsis

```
msTdDisable ["ALL"]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to disable the Management Server Topology Discovery service locally or fabric-wide. This command will disable the topology service of the local switch and commit the changes to non-volatile memory of the local switch. If the optional parameter `"ALL"` is given, then the command is executed on the entire fabric.

Once disabled, even in the event of a power boundary, the switch will boot up with the Topology Discovery service DISABLED.

Note: Topology Discovery service requires the attached devices which include attached switches to support the RNID ELS command.

When security is enabled, and using the `"ALL"` operand, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operand:

`ALL`	Specify `ALL` to disable the Topology Discovery service on all switches in the fabric. For V3.1.x, the operand `ALL` must be enclosed in quotation marks. The operand `ALL` must be in capital letters. This operand is optional.

Example

To disable the Management Server Topology Discovery service locally or fabric-wide:

```
switch:admin> mstddisable
This may erase all NID entries. Are you sure?  (yes, y, no, n): [no] y

Request to disable MS Topology Discovery Service in progress....
*MS Topology Discovery disabled locally.

switch:admin>
switch:admin> mstddisable ALL
This may erase all NID entries. Are you sure?  (yes, y, no, n): [no] y

Request to disable MS Topology Discovery Service in progress....
*MS Topology Discovery disabled locally.
*MS Topology Discovery Disable Operation Complete!!

switch:admin>
```

See Also

msTdEnable

msTdReadConfig

msTdEnable

Enable the Management Server Topology Discovery service.

Synopsis

```
msTdEnable ["ALL"]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable the Management Server Topology Discovery service locally or fabric-wide. This command enables the Topology Discovery service on the local switch and commits the change to the non-volatile memory of the local switch. If the optional operand "ALL" is given, then the command is executed on the entire fabric.

Once enabled, even in the event of a reboot, the switch will be boot up with the Management Server Topology Discovery service enabled.

Topology Discovery service requires the attached devices which include attached switches to support the RNID ELS command.

Note: When security is enabled, and using the "ALL" operand, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operand:

ALL	Specify ALL to enable the topology discovery service on all switches in the fabric. For V3.1.x, the operand ALL must be enclosed in quotation marks. The operand ALL must be in capital letters. This operand is optional.

Example

To enable the Management Server Topology Discovery service locally or fabric-wide:

```
switch:admin> mstdenable

Request to enable MS Topology Discovery Service in progress....
*MS Topology Discovery enabled locally.

switch:admin>
switch:admin> mstdenable ALL

Request to enable MS Topology Discovery Service in progress....
*MS Topology Discovery enabled locally.
*MS Topology Discovery Enable Operation Complete!!

switch:admin>
```

See Also

msTdDisable

msTdReadConfig

msTDReadConfig

Displays the status of Management Server Topology Discovery service.

Synopsis

```
msTdReadConfig
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to check whether or not the Management Server Topology Discovery service is enabled.

Operands

None.

Example

To display the status of the Topology Discovery service:

```
switch:admin> msTdReadConfig
*MS Topology Discovery is Enabled.
switch:admin>
```

See Also

msTdEnable

msTdDisable

myid

Displays the current login session details.

Synopsis

```
myid
```

Availability

Admin

Release

V4.1.x

Description

Use this command to display the status of the system and the login session details. The Status displays if the system is Redundant or Non-Redundant or Unknown.

The login session gives details of the following:

- Which CP/Switch (or console/serial port) was used to log in
- The IP address of the current login session for telnet or the name of the current Console port or the Serial port (if modem login used)
- The Current CP's mode (Active or Standby or Unknown)
- The Current System Status (Redundant or Non-Redundant or Unknown)

Operands

None.

Example

To display current login information:

```
switch:admin> myid
Current Switch: switch0
Session Detail: Console Port (/dev/ttyS0) Active  Redundant
```

See Also

version

nbrStatsClear

Reset FSPF interface counters.

Synopsis: V3.1.x

```
nbrStatsClear [portnumber]
```

Synopsis: V4.1.x

```
nbrStatsClear [slotnumber/][portnumber]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to reset the counters of FSPF frames transmitted and received on an interface.

Use this command with no operand to reset counters on all interfaces.

Operands

This command has the following operand:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

When this command is specified with no operand, the statistics are cleared for all interfaces.

Examples

To display how to reset the counters on slot 1 port 4:

```
switch:admin> nbrstatsclear 1/4
```

See Also

interfaceShow

portShow

switchShow

nbrStateShow

Displays FSPF neighbor's state.

Synopsis: V3.1.x

```
nbrStateShow [portnumber]
```

Synopsis: V4.1.x

```
nbrStateShow [slotnumber/][portnumber]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display information about neighbors to the local switch, or information about a specific neighbor if a port number is supplied. A neighbor is a switch that is directly attached to the local switch. The display shows the following fields:

Local Domain ID	Domain number of local switch.
Local Port	E_Port (interface) on local switch.
Domain	Domain number of remote switch.
Remote Port	E_Port (interface) on remote switch.
State	State of the neighbor. The E_Port is used to route frames only if the neighbor is in NB_ST_FULL state.

Operands

This command has the following operand:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

Examples

To display information about switches directly connected to the local switch:

```
switch:admin> nbrStateShow 2/0
Local Domain ID: 15
Local Port     Domain     Remote Port   State
-----------------------------------------------------
2                 13          13        NB_ST_FULL
6                 13          9         NB_ST_FULL
7                 13          8         NB_ST_FULL
13                 3          7         NB_ST_FULL
```

See Also

interfaceShow

nodefind

Displays all the device PIDs matching a given WWN.

Synopsis

```
nodefind "WWN"
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the 24-bit Fibre Channel addresses of all the devices in the fabric that have either port world wide name or node world wide name matching with the given world wide name.

The message `No device is found with wwn xxxxxxxx` is displayed if there is no device matching the given `WWN`. If matches are found, the command displays the number of devices found.

Operands

This command has the following operand:

WWN	Specify the world wide name which can be used to match the real device's port WWN or node WWN. The world wide name must have eight colon separated fields each consisting of 1 or 2 hexadecimal digits between 0 and ff, with no spaces.

Examples

To display all the device PIDs matching a given WWN:

```
switch:admin> nodefind "50:05:07:65:05:04:08:e5"
1 device is found with wwn 50:05:07:65:05:04:08:e5
switch:admin>
```

See Also

nsshow

nsallshow

nscamshow

nsaliasshow

Displays local name server information with aliases.

Synopsis: V3.1.x

```
nsaliasshow
```

Synopsis: V4.1.x

```
nsaliasshow [-r]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

This command is a duplicate of the command `nsshow` with the added feature of displaying the defined configuration aliases that the device belongs to.

The message `There is no entry in the Local Name Server` is displayed if there is no information in this switch, but there still may be devices connected to other switches in the Fabric. The command `nsallshow` shows information from all switches.

The display is identical to the command `nsshow` with the exception that an additional line is added for the aliases that the device belongs to after all other fields for the device. If there are no defined configuration aliases for that device, no alias is shown.

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operand:

-r	Specify this option to replace the TTL attribute output with SCR (state change registration) information in the display. SCR is the state change registration of a device. This value indicates what type of RSCN a device registers to receive.

Examples

This example shows a cached entry and six local entries, with two of the devices having aliases:

```
switch:admin> nsAliasShow
The Local Name Server has 7 entries {
Type Pid    COS     PortName                NodeName                 TTL(sec)
*N    011200;    2,3;10:00:00:60:69:00:ab:ba;10:00:00:60:69:00:ab:ba; 60
    FC4s: FCIP
    Fabric Port Name: 20:02:00:60:69:00:68:19
    Aliases:
N    021200;    2,3;10:00:00:60:69:00:03:19;30:00:00:60:69:00:03:19; na
    FC4s: FCIP
    Fabric Port Name: 20:02:00:60:69:01:44:22
    Aliases:
N    021300;      3;10:00:00:60:69:00:02:d6;20:00:00:60:69:00:02:d6; na
    Fabric Port Name: 20:03:00:60:69:01:44:22
    Aliases: DeviceAlias
NL   0214e2;      3;21:00:00:fa:ce:00:21:1e;20:00:00:fa:ce:00:21:1e; na
    FC4s: FCP [STOREX  RS2999FCPH3     MT09]
    Fabric Port Name: 20:04:00:60:69:01:44:22
    Aliases:
NL   0214e4;      3;21:00:00:fa:ce:00:21:e1;20:00:00:fa:ce:00:21:e1; na
    FC4s: FCP [STOREX  RS2999FCPH3     CD09]
    Fabric Port Name: 20:04:00:60:69:01:44:22
    Aliases: MyAlias1 MyAlias2
NL   0214e8;      3;21:00:00:fa:ce:04:83:c9;20:00:00:fa:ce:04:83:c9; na
    FC4s: FCP [STOREX  RS2999FCPH3     NS09]
    Fabric Port Name: 20:04:00:60:69:01:44:22
    Aliases:
NL   0214ef;      3;21:00:00:ad:bc:04:6f:70;20:00:00:ad:bc:04:6f:70; na
    FC4s: FCP [STOREX  RS2999FCPH3     JB09]
    Fabric Port Name: 20:04:00:60:69:01:44:22
    Aliases:
```

See Also

nsshow

nsallshow

switchshow

nsAllShow

Displays global Name Server information.

Synopsis

`nsAllShow [type]`

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the 24-bit Fibre Channel addresses of all devices in all switches in the fabric. If the operand `type` is supplied, only devices of specified FC-PH type are displayed. If `type` is omitted, all devices are displayed.

Note: Specifying the `type` operand causes the switch to send out a query to every switch in the fabric. On a large fabric it is recommended *not* to run a script that repeatedly issues the `nsAllShow` command with a type operand specified.

Operands

This command has the following operand:

type	Specify the FC-PH type code. This operand is optional. The valid values for this operand are 0 to 255. Below are two specific FC-PH device type codes: 8 = FCP type device 4 , 5 = FC-IP type device Other FC-PH types are displayed in the format "*x* ports supporting FC4 *code*" where *x* is the number of ports of a type, and *code* is the FC-PH type code.

Example

To display all devices in the Fabric, followed by all type 8 (SCSI-FCP) devices and all type 5 (SCSI-FCIP) devices:

```
switch:admin> nsAllShow
     12 Nx_Ports in the Fabric {
     011200 0118e2 0118e4 0118e8 0118ef 021200
     0214e2 0214e4 0214e8 0214ef
    }
switch:admin> nsAllShow 8
     8 FCP Ports {
     0118e2 0118e4 0118e8 0118ef 0214e2 0214e4 0214e8 0214ef
      }
switch:admin> nsAllShow 5
    2 FC-IP Ports in the Fabric {
    011200 021200}
```

See Also

nsShow

switchShow

nscamshow

Displays information about remote devices in the Name Server Cache.

Synopsis

```
nscamshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the local Name Server Cache information about the devices discovered in the fabric by the Name Server Cache manager.

The message `No Entry found!` is displayed if the Name Server Cache Manager hasn't discovered new switches and any new devices in the fabric.

For each remote switch found the output of this command shows the domain number, state, revision, owner, the list of cold and hot devices for that domain number. For each device found in the cold or hot devices list, the following information is displayed:

`Type`	U for unknown, N for N_Port, NL for NL_Port.
`Pid`	The 24-bit Fibre Channel address.
`COS`	A list of classes of service supported by the device.
`PortName`	The device's port Worldwide Name.
`NodeName`	The device's node Worldwide Name.

There may be additional lines if the device has registered any of the following information (the switch automatically registers SCSI inquiry data for FCP target devices): FC4s supported and fabric port name.

Operands

None.

Example

To displays all Switch and device entries discovered by the Name Server in the fabric:

```
switch:admin> nscamshow

nscam show for remote switches:

Switch entry for 2
state   rev     owner
cold    v250+   0xfffc01

Hot device list:
No Entry found!

Cold device list:
Type Pid    COS     PortName                NodeName
N    021200;    2,3;10:00:00:60:69:00:ab:ba;10:00:00:60:69:00:ab:ba;
FC4s: FCIP      Fabric Port Name: 20:02:00:60:69:00:68:19
```

See Also

nsshow

nsallshow

switchshow

nsShow

Displays local Name Server information.

Synopsis: V3.1.x

```
nsShow
```

Synopsis: V4.1.x

```
nsShow [-r]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display local Name Server information, including information about devices connected to this switch, and cached information about devices connected to other switches in the fabric.

The following message is displayed if there is no information in this switch:

```
There is no entry in the Local Name Server
```

There still may be devices connected to other switches in the fabric. The command `nsAllShow` displays information from all switches.

Each line of output shows:

*	Indicates a cached entry from another switch.
Type	U for unknown, N for N_Port, NL for NL_Port.
PID	24-bit Fibre Channel address.
COS	List of classes of service supported by device.
PortName	Device port World Wide Name.
NodeName	Device node World Wide Name.

TTL	Time-to-live (in seconds) for cached entries, or NA (not applicable) if the entry is local.
SCR (V4.1.x only)	State change registration of the device. This is displayed if "-r" option is given.

There may be additional lines if the device has registered any of the following information (the switch automatically registers SCSI inquiry data for FCP target devices):

- FC4s supported
- IP address
- IPA
- Port and node symbolic names
- Fabric Port Name—This is the WWN of the port on the switch that the device is physically connected to.
- Hard address and port IP address

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operand:

-r	Specify this option to replace the TTL attribute output with SCR (state change registration) information in the display. SCR is the state change registration of a device. This value indicates what type of RSCN a device registers to receive.

Example

To display local name server information:

```
switch:admin> nsshow
The Local Name Server has 1 entry {
 Type Pid    COS     PortName                NodeName                TTL(sec)
 N    060300;    2,3;10:00:00:00:c9:24:0d:b3;20:00:00:00:c9:24:0d:b3; na
    FC4s: FCP
    Fabric Port Name: 20:03:00:60:69:00:54:e9
```

See Also

`nsAllShow`

`switchShow`

nsstatshow

Displays local Name Server statistical information.

Synopsis

```
nsstatshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

This command displays local Name Server statistical information.

Operands

None.

Example

To display local Name Server statistical information:

```
switch:admin> nsstatshow
Name Server Statistics {
          69 invoked              2 invokedErr            0 noBuf
  Input
          0 discards              0 errors                3 accepted
          0 rejected
  Output
          0 request               0 errors                0 unexpected
          0 cached                0 timedout              0 truncated
  Req. breakdown
          0 G?_ID                 0 G?_NN                 0 GID_NN
          1 GID_FT                4 GID_PT                0 GID_FF
          0 GPN_FT                0 GNN_FT                0 GA_NXT
          1 R?_ID                 0 R?_NN                 0 other
}
Name Server to Server Communication Statistics {
  Input
          0 requests             48 accepts               4 rejects
          0 informs               0 deletions
          2 ge_id                 0 ge_pn                 0 ge_nn
  Output
          52 requests            52 accepts              15 rejects
          0 informs               0 deletions             0 truncations
  Errors
          0 nobuf                 0 inErrors              0 inDiscards
          0 outErrors             0 unexpected
}

switch:admin>
```

See Also

nsallshow

nsshow

nscamshow

switchshow

nszonemember

Displays the information of all the online devices which are zoned with the given device.

Synopsis

```
nszonemember "PID"
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the information of all the online devices which are zoned with the given device. Each line of output shows:

Type	U for unknown, N for N_Port, NL for NL_Port.
Pid	24-bit Fibre Channel address.
COS	List of classes of service supported by device.
PortName	Device port World Wide Name.
NodeName	Device node World Wide Name.

There may be additional lines if the device has registered any of the following information (the switch automatically registers SCSI inquiry data for FCP target devices):

- FC4s supported
- IP address
- IPA
- Port and node symbolic names (local device only)
- Fabric Port Name
- Hard address and/or port IP address

Operands

None.

Example

To display the information of all the online devices which are zoned with the given device:

```
switch:admin> nszonemember 0x0416e2
3 local zoned members:

Type Pid    COS     PortName                NodeName                 T
NL   041901;    2,3;10:00:00:00:c9:26:0e:ae;20:00:00:00:c9:26:0e:ae; n
Fabric Port Name: 20:09:00:60:69:50:06:78
NL   0416e2;      3;22:00:00:20:37:d9:6b:b3;20:00:00:20:37:d9:6b:b3; n
FC4s: FCP [SEAGATE ST318304FC      0005]
Fabric Port Name: 20:06:00:60:69:50:06:78
NL   0416e4;      3;22:00:00:20:37:d9:61:ac;20:00:00:20:37:d9:61:ac; n
FC4s: FCP [SEAGATE ST318304FC      0005]
Fabric Port Name: 20:06:00:60:69:50:06:78

No remote zoned members
```

See Also

nsshow

nscamshow

cfgshow

parityCheck

Enable or disable DRAM parity checking.

Synopsis

`parityCheck` *[mode]*

Availability

Admin

Release

V3.1.x

Description

Use this command to enable DRAM parity checking. The mode is saved in non-volatile memory and stays in that mode until the next execution of `parityCheck`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The DRAM parity checking, when enabled, causes `ramTest` to perform several additional tests of the parity memory. It also enables the parity checking hardware to verify proper parity on all DRAM read operations. DRAM parity checking is only available on specific switch models. If the current switch does not support parity checking an error is displayed.

Operands

This command has the following operand:

mode	Specify a 1 to enable DRAM parity checking or specify a 0 to disable it. The default (if no operand is specified) is to disable parity checking. This operand is optional.

Example

To enable and disable DRAM parity checking:

```
switch:admin> parityCheck 1
Committing configuration...done.
Parity check is now ON.

switch:admin> parityCheck 0
Committing configuration...done.
Parity check is now OFF.

switch:admin> parityCheck 0
Parity not supported on system model: 4
Parity check already OFF.
```

See Also

ramTest

passwd

Change system login name and password.

Synopsis: V3.1.x

```
passwd ["username"]
```

Synopsis: V4.1.x

```
passwd ["user"]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to change the password for the user currently logged in, or, for another user. To change the password for a specific user, enter the command with the optional operand.

The hierarchy of user levels are (from greatest access to least) is Root, Factory, Admin, and User. Typically, all fabric management should be performed from the Admin user.

If the fabric is not in secure mode, the behavior of the command is as follows:

- If you are changing your own user level password, you are prompted to enter the old password, and if it is valid, then the new password.
- If a you are changing another user level password, you are prompted to enter that user level's old password, and if it is valid, then the new password.
- If you are logged in as the Root user when changing another user level password, you are not prompted to enter the old password.
- The command is disabled until you have changed all the login passwords from the manufacture default values.

If the fabric is in secure mode, the behavior of the command is as follows:

- If you change your current login level password, you are also prompted to change the passwords of all the user levels below your current level in the user level hierarchy. For example, if you execute this command as the Admin user, you are prompted to change the password of the User account, as User is below Admin in the hierarchy. If you execute this command as the Root level, then you are prompted to change the passwords of Factory, Admin, and User. If the command is aborted at any point, the current passwords are not changed for any user level.
- The command can only be run on the primary FCS switch. The changed passwords will be distributed to all FCS switches. Non-FCS switches will be updated if the password of the user account is changed.
- Changing the password of any user level will cause the login session of that account (if logged in) to be terminated.

Note: If the Security option is enabled on the fabric this command is disabled on all switches except the Primary FCS. See "Security Commands" on page 941. Refer to the *HP StorageWorks Extended Fabric Version 3.1.x/4.1.x User Guide* for more information.

The new password must fulfill these rules:

- For V3.1.x, the password must have 6 to 8 characters. If more than 8 characters are entered, only the first 8 characters are used for password validation at user login.
- For V4.1.x, the password must have 8 to 40 characters.
- Must not be the same as the previous password.
- Must not match either the username or any word of the realname, either in normal or in reverse order, or at the beginning or at the end.
- Must contain characters out of at least two of the following classes: upper and lower case letters, digits, or non-alphanumeric characters.

The currently logged in user can change the passwords for their own security level, and any security level below. The hierarchy of user login levels is as follows:

1. Root
2. Factory

3. Admin
4. User

Input Control

Use the following to control input:

Enter	When entered at a prompt with no preceding input, accepts the default value (if applicable) and moves to the next prompt.
Ctrl-D (end of file)	When entered at a prompt with no preceding input, it terminates the command without changing password. This is valid on most computers, however, your settings could be different.

Operands

This command has the following operands:

username (V3.1.x only)	Specify the name of the user, in quotation marks, where you want to modify the password. You can also modify the name of the user login ID. This operand is optional.
user (V4.1.x only)	Specify the name of the user, in quotation marks, where you want to modify the password. This operand is optional. Valid values are: Root, Factory, Admin, or User. You can only specify this operand when you are logged in as Root, Factory, or Admin. If you try to change the password of a user level who is higher in hierarchy (for example: Admin changing the Root password), you are prompted to enter the current password of that level. If you try to change the password of a user level who is lower in hierarchy, you are not prompted to enter the current password.

Example

To change the Admin user name and password using V3.1.x:

```
switch:admin> passwd "admin"
New username [admin]: maint
Old password: ********
New password: ********
Re-enter new password: ********
Password changed.
Saving password to stable storage.
Password saved to stable storage successfully.
```

To change the password for the Admin user using V4.1.x:

```
switch:admin> passwd "admin"
Changing password for admin
Enter new password:
Re-type new password:
Password changed.
Saving password to stable storage.
Password saved to stable storage successfully.
switch:admin>
```

Errors

When failures are detected, the subtest may report one or more of the following error messages:

`"user" is not a valid user name.`	You have not specified a user name that is a valid, recognized user name on the system.
`Permission denied.`	You do not have permission to change the login name or password specified.
`That user name is already being used.` (V3.1.x only)	You cannot change the user name to that of a previously existing user.
`Incorrect password.`	You have not entered the correct password when prompted for the old password.
`Password unchanged.`	You have entered the carriage return special input case, choosing not to change the password.
`Passwords do not match.`	You have not correctly verified the new password.

See Also

login

logout

pdshow

Displays data from a panic dump file.

Synopsis

```
pdshow [panic-dump-file]
```

Availability

Admin

Release

V4.1.x

Description

Use this command to display data from a panic dump file. The panic dump file contains information that may be useful to determine the cause of the system panic.

When executed without any arguments, this command displays output from the latest panic dump file available on the switch.

If a panic dump file is specified as an argument, the contents of that specific file are displayed.

Operands

This command has the following operands:

panic-dump-file	Specify the full path name of a panic dump file. This operand is optional.

Example

The following example shows how `pdshow` can be used to examine a panic dump file by the name *`panic_dump`* located under the directory `/tmp`:

```
switch:admin> pdshow /tmp/panic_dump

              *** CAUTION ***
  *  Host  PLATFORM  (current) is: 'Unknown'
  *  PLATFORM got from pd file is: 'Ulysses'
  *  Some restuls shown may be incorrect and/or missing
  *  It is best if this command is run on same PLATFORM as that of pdfile
              **************

_________________________********_____________________________
*   File   :/core_files/panic/core.pd1038932352       *
*   SECTION:PD_MISC                                   *
-----------------------********-------------------------
WatchDogRegister=0x0
Section=Startup time: Tue Dec  3 16:06:11 UTC 2002
Kernel=     2.4.19
Fabric OS=  v4.1.0_j_dist_1103
Made on=    Tue Dec 3 19:07:13 2002
Flash=      Tue Dec 3 13:19:06 2002
BootProm=   3.2.0
Section=HA show Output
haShow=Local CP (Slot 6, CP1): Standby
haShow=Remote CP (Slot 5, CP0): Active
haShow=HA enabled, Heartbeat Up, HA State synchronized
<output truncated>
```

See Also

savecore

portlogdump

perfAddEEMonitor

Add end-to-end monitor to a port.

Synopsis: V3.1.x

```
perfAddEEMonitor portnumber, "SourceID", "DestID"
```

Synopsis: V4.1.x

```
perfAddEEMonitor [slotnumber/]portnumber, "SourceID",
"DestID"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to add an end-to-end performance monitor to a port. The monitor counts the number of words received, number of words transmitted and number of CRC errors detected with frames qualified using either of following two conditions:

- For frames received at the port (with end-to-end monitor installed) the frame SID is the same as “SourceID” and frame DID is the same as “DestID.” Both RX_COUNT and CRC_COUNT will be updated accordingly and are associated with frames received at port.
- For frames transmitted from the port (with end-to-end monitor installed) the frame DID is the same as “SourceID” and frame SID is the same as “DestID,” TX_COUNT will be updated accordingly and are associated with frames received at port.

Depending on the application, any port along the routing path can be selected for such monitoring.

For example, to monitor traffic flowing from point A, receiving at port C and transmitting at port D to reach point B, and the traffic flowing back from B to A. You can install a monitor on port C, specify point A as “SourceID” and point B as

"DestID." Then RX_COUNT counts the traffic flow from A to B, CRC_COUNT counts the frames with CRC error from A to B. TX_COUNT counts the traffic from B to A.

Similarly, you can install a monitor on port D, specify point B as "SourceID" and point A as "DestID." Then RX_COUNT counts the traffic from B to A, CRC_COUNT counts the frames with CRC errors from B to A and TX_COUNT counts the traffic from A to B.

End-to-end monitors traffic on receiving port, respective to "SourceID," only, which implies in the above example, install a monitor on port D with point A as "SourceID" and point B as "DestID" will not generate any counts.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these performance monitors.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
SourceID	Specify the 3-byte SID (Source ID) of the originator device. It should be in "0xDDAAPP" format, where DD is Domain ID, AA is Area ID and PP is AL_PA ID. For example, 0x058e0f, has a Domain ID of "5," an Area ID of "8e," and an AL_PA ID of "f."

DestID	Specify the 3-byte DID (Destination ID) of the destination device. It should be in "0xDDAAPP" format, where DD is Domain ID, AA is Area ID and PP is AL_PA ID. For example, 0x058e0f, has a Domain ID of "5," an Area ID of "8e," and an AL_PA ID of "f."

Example

To add an end-to-end monitor to blade 7 port 2:

```
switch:admin> perfAddEEMonitor 7/2, "0x058e0f", "0x1182ef"
End-to-End monitor number 0 added.
switch:admin>
```

See Also

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddIPMonitor

Add a filter-based monitor for IP frame count.

Synopsis: V3.1.x

`perfAddIPMonitor` *`portnumber[, "alias"]`*

Synopsis: V4.1.x

`perfAddIPMonitor` *`[slotnumber/]portnumber[, "alias"]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to define filter-based monitors to count the number of IP traffic frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be displayed with the `perfShowFilterMonitor` command.

There is no need to define multiple IP frame monitors on a port.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and must be enclosed in quotation marks. This operand is optional. The default alias is IP FRAME.

Example

To add an IP monitor to blade 2 port 4:

```
switch:admin> perfAddIPMonitor 2/4, "IP"
IP traffic frame monitor #0 added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddReadMonitor

Add a filter-based monitor for the SCSI Read command.

Synopsis: V3.1.x

`perfAddReadMonitor` *`portnumber[, "alias"]`*

Synopsis: V4.1.x

`perfAddReadMonitor` *`[slotnumber/]portnumber[, "alias"]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to define filter-based monitors to count the number of SCSI FCP Read commands in Fibre Channel frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

The maximum number of filters is 8 per port including user-defined filters, read filters, write filters, and read/write filters.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI READ.

Example

To add a SCSI Read monitor to blade 2 port 4:

```
switch:admin> perfAddReadMonitor 2/4, "SCSI_R"
SCSI Read filter monitor #2 added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddIPMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddRWMonitor

Add a monitor for the SCSI Read and Write commands.

Synopsis: V3.1.x

`perfAddRWMonitor` *`portnumber[, "alias"]`*

Synopsis: V4.1.x

`perfAddRWMonitor` *`[slotnumber/]portnumber[, "alias"]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to define filter-based monitors to count the number of SCSI FCP Read and Write commands in Fibre Channel frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

The maximum number of filters is 8 per port including user-defined filters, read filters, write filters, and read/write filters.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI R/W.

Example

To add a SCSI Read and Write monitor to blade 2 port 4:

```
switch:admin> perfAddRWMonitor 2/4, "SCSI_RW"
SCSI Read/Write monitor #1 is added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddSCSIMonitor

Add a monitor for SCSI frame count.

Synopsis: V3.1.x

`perfAddSCSIMonitor` *`portnumber[, "alias"]`*

Synopsis: V4.1.x

`perfAddSCSIMonitor` *`[slotnumber/]portnumber[, "alias"]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to define filter-based monitors to count the number of SCSI traffic frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

There is no need to define multiple SCSI frame counters on a port.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI FRAME.

Example

To add a SCSI traffic frame monitor to blade 2 port 4:

```
switch:admin> perfAddSCSIMonitor 2/4, "SCSI_FR"
SCSI traffic frame monitor #0 added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddUserMonitor

Add a user-defined filter-based monitor.

Synopsis: V3.1.x

```
perfAddUserMonitor portnumber, "grouplist"[,"alias"]
```

Synopsis: V4.1.x

```
perfAddUserMonitor [slotnumber/]portnumber,
"grouplist"[,"alias"]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to define a special mechanism to qualify frames for statistics gathering to fit your own special need.

Each group of elements with same offset will have their comparison result (OR-ed) together before the combined result of each group get (AND-ed) together for final comparison result. If the final result is logic 1, then the monitor counter will be increased by one.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

The maximum number of filters is 8 per port including user defined filters, read filters, write filters, and read/write filters. In addition there should be no more than 6 different Offsets for each filter and no more than 4 different values per Offset defined by user.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

grouplist

Specify up to 6 sets of Offset, Mask, and ValueList separated by a semicolon (;). The entire grouplist operand must be enclosed in quotation marks. This operand is required.

The grouplist operand must be specified in the following format:

"offset, Mask, ValueList; offset, Mask, ValueList"

For example:

"4, 0xff, 0x22; 12, 0xff, 0x01"

The grouplist component values are as follows:

- Offset - Specify the offset within the frame. Offset 0 is the first byte of the SOF, and offset 4 is the first byte of the frame header. The Offset must be in decimal format. Valid values for Offset are 0, [4-63]. Offset 0 is a special case which can be used to monitor the first 4 bytes of SOFx frames. EOF can not be monitored.
- Mask - Specify the mask value to be applied (ANDed) to frame contents.
- ValueList - Specify up to four values that need to be captured from frame contents. The ValueList can be either hexadecimal or decimal format.
- SOFx frames are considered a special case. The Offset is specified as 0x0 and valueList is specified with:

  0 - SOFf

  1 - SOFc1

  2 - SOFi1

  3 - SOFn1

  4 - SOFi2

  5 - SOFn2

  6 - SOFi3

  7 - SOFn3

alias

Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional.

Example

To add a filter based monitor for all Extended Link Service request (R_CTL=0x22 and TYPE=0x01) to blade 2 port 4:

```
switch:admin> perfAddUserMonitor 2/4, "4, 0xff, 0x22; 12, 0xff, 0x01"
User monitor #0 added
switch:admin>
```

As a special case, to add a filter based monitor for SOFi3 on blade 2 port 4:

```
switch:admin> perfAddUserMonitor 2/4, "0, 0xff, 6"
User monitor #1 added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddWriteMonitor

perfAddWriteMonitor

Add a filter-based monitor for the SCSI Write command.

Synopsis: V3.1.x

```
perfAddWriteMonitor portnumber[, "alias"]
```

Synopsis: V4.1.x

```
perfAddWriteMonitor [slotnumber/]portnumber[, "alias"]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to define filter-based monitors to count the number of SCSI FCP Write commands in Fibre Channel frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

The maximum number of filters is 8 per port including user-defined filters, read filters, write filters and read/write filters.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI_Write.

Example

To add a SCSI Write command monitor to blade 2 port 4:

```
switch:admin> perfAddWriteMonitor 2/4, "SCSI_W"
SCSI Write filter monitor #0 added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfCfgClear

Clear the previously saved performance monitoring configuration settings from non-volatile memory.

Synopsis

```
perfCfgClear
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to clear the previously saved end-to-end and filter configuration settings of performance monitoring from non-volatile memory.

Note: This command requires an Advanced Performance Monitoring license.

Operands

None.

Example

To clear the performance monitoring information from non-volatile memory:

```
switch:admin> perfcfgClear
This will clear Performance Monitoring settings in FLASH ROM.
The RAM settings won't change. Do you want to continue? [y|n]y
Please wait ...
Committing configuration...done.
Performance Monitoring configuration cleared from FLASH.
switch:admin>
```

See Also

perfCfgRestore
perfCfgSave

perfCfgRestore

Restore performance monitoring configuration settings from non-volatile memory.

Synopsis

```
perfCfgRestore
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to restore the performance monitoring configuration information from non-volatile memory.

Note: This command requires an Advanced Performance Monitoring license.

Operands

None.

Example

To restore the performance monitoring configuration information from non-volatile memory:

```
switch:admin> perfCfgRestore
This will overwrite current Performance Monitoring settings in RAM. Do you
want to continue? [y|n]y
Please wait ...
Performance monitoring configuration restored from FLASH ROM.
switch:admin>
```

See Also

perfCfgClear
perfCfgSave

perfCfgSave

Save performance monitoring configuration settings to non-volatile memory.

Synopsis

```
perfCfgSave
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to save the current end-to-end and filter configuration settings of performance monitoring into non-volatile memory. This enables the performance monitoring configuration to be saved over power off cycles.

Note: This command requires an Advanced Performance Monitoring license.

Operands

None.

Example

To save the current performance monitoring configuration to firmware:

```
switch:admin> perfCfgSave
This will overwrite previously saved Performance Monitoring settings in FLASH
ROM. Do you want to continue? [y|n]y
Please wait ...
Committing configuration...done.
Performance monitoring configuration saved in FLASH ROM.
switch:admin>
```

See Also

perfCfgClear
perfCfgRestore

perfcleareemonitor

Clears statistics counters of an end-to-end monitor on a port.

Synopsis: V3.1.x

`perfcleareemonitor` *`portnumber[, monitorId]`*

Synopsis: V4.1.x

`perfcleareemonitor` *`[slotnumber/]portnumber[, monitorId]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to clear statistics counters for all or a specified End-to-End monitor on a port.

After a successful execution of this command, the telnet shell will confirm that this monitor's counters have successfully been cleared. Prior to issuing this command, verify all the valid End-to-End monitor numbers on a specific port using the `perfshoweemonitor` command to make sure that the right monitor's counters will be cleared.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to clear. Monitor numbers are defined when you create the monitor on a port. This operand is optional. If not specified, all monitors's counters on the port will be cleared.

Example

To clear statistics counters for an End-to-End monitor:

```
switch:admin> perfcleareemonitor 2, 5
End-to-End monitor number 5 counters are cleared
switch:admin>
switch:admin> perfcleareemonitor 2
This will clear ALL EE monitors' counters on port 2, continue? (yes, y, no,
n): [no] y
switch:admin>
```

See Also

perfshoweemonitor

perfaddeemonitor

perfclearfiltermonitor

Clears statistics counters of a filter-based monitor.

Synopsis: V3.1.x

`perfclearfiltermonitor` *`portnumber [, monitorId]`*

Synopsis: V4.1.x

`perfclearfiltermonitor` *`[slotnumber/]portnumber [, monitorId]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to clear statistics counters for all or a specified filter-based monitor.

After a successful execution of this command, the telnet shell will confirm that this monitor's counters have successfully been cleared. Prior to issuing this command, verify all the valid monitor numbers user-defined aliases on a specific port using the `pershowfiltermonitor` command to make sure that the right monitor's counters will be cleared.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to clear. Monitor numbers are defined when you create the monitor on a port. This operand is optional. If not specified, all monitors's counters on the port will be cleared.

Example

To clear statistics counters for a filter-based monitor 4 on port 2:

```
switch:admin> perfclearfiltermonitor 1/2, 4
Filter-based monitor number 4 counters are cleared
switch:admin>
switch:admin> perfclearfiltermonitor 1/2
This will clear ALL filter-based monitors' counters on port 2, continue?
(yes, y, no, n): [no] y
switch:admin>
```

See Also

perfshowfiltermonitor

perfaddusermonitor

perfClrAlpaCrc

Clear an AL_PA device's CRC count by the port and AL_PA.

Synopsis: V3.1.x

`perfClrAlpaCrc` *`portnumber[, ALPA]`*

Synopsis: V4.1.x

`perfClrAlpaCrc` *`[slotnumber/]portnumber[, ALPA]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to clear a specific AL_PA device's CRC error counter. If the AL_PA is provided as an operand only the counters for that device are reset; if no AL_PA is specified this command clears the CRC counters for all AL_PA devices on the specified port.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
ALPA	Specify the AL_PA address if you want to clear the CRC error counter for a particular device. This operand is optional.

Example

To clear CRC count on a particular AL_PA on blade 2 port 15, and then clear CRC count for all AL_PAs on blade 2 port 15:

```
switch:admin> perfClrAlpaCrc 2/15, 0x59
CRC error count at ALPA 0x59 on port 15 is cleared.
switch:admin>
switch:admin> perfClrAlpaCrc 2/15
This will clear all ALPA CRC Counts on port 15
Do you want to continue? [y|n]y
Please wait ...
All alpa CRC counts are cleared on port 15.
switch:admin>
```

See Also

perfShowAlpaCrc

perfDelEEMonitor

Delete an end-to-end monitor on port.

Synopsis: V3.1.x

`perfDelEEMonitor` *`portnumber[, monitorId]`*

Synopsis: V4.1.x

`perfDelEEMonitor` *`[slotnumber/]portnumber[, monitorId]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to delete an End-to-End monitor on a port.

After a successful execution of this command, a message displays confirming that this monitor has successfully been deleted. Prior to issuing this command, verify all the valid end-to-end monitor numbers on a specific port using the `perfshowfiltermonitor` command to make sure that the right monitor is deleted.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to delete. Monitor numbers are defined when you create the monitor on a port. This operand is optional. When not specified, all monitors on the port are deleted.

Example

To delete an end-to-end monitor on blade 7 port 2:

```
switch:admin> perfDelEEMonitor 7/2, 5
End-to-End monitor number 5 deleted
switch:admin>
switch:admin> perfdeleemonitor 2
This will remove ALL EE monitors on port 2, continue? (yes, y, no, n): [no] y
switch:admin>
```

See Also

perfShowEEMonitor

perfAddEEMonitor

perfDelFilterMonitor

Delete a filter-based monitor.

Synopsis: V3.1.x

`perfDelFilterMonitor` *`portnumber[, monitorId]`*

Synopsis: V4.1.x

`perfDelFilterMonitor` *`[slotnumber/]portnumber[, monitorId]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to delete a filter-based monitor.

After a successful execution of this command, the telnet shell confirms that this monitor has successfully been deleted. Prior to issuing this command, verify all the valid monitor numbers and user-defined aliases on a specific port using the `perfShowFilterMonitor` command to make sure that the right monitor will be deleted.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to delete. Monitor numbers are defined when you create the monitor on a port. This operand is optional. If no operand is specified, all monitors on the port are deleted.

Example

To delete filter monitor 4 on blade 2 port 3:

```
switch:admin> perfDelFilterMonitor 2/3, 4
The specified filter-based monitor is deleted.
switch:admin>
switch:admin> perfdelfiltermonitor 3
This will remove ALL monitors on port 3, continue? (yes, y, no, n): [no] y
switch:admin>
```

See Also

perfShowFilterMonitor

perfAddUserMonitor

perfHelp

Displays performance monitoring help information.

Synopsis

```
perfHelp
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the available performance monitoring help commands.

Note: This command requires an Advanced Performance Monitoring license.

Operands

None.

Example

To display commands related to performance monitoring:

```
switch:admin> perfHelp

perfCfgSave              Save Performance configuration
perfCfgRestore           Restore Performance configuration
perfCfgClear             Clear Performance settings from flash
perfClrAlpaCrc           Clear ALPA device's CRC count
perfShowAlpaCrc          Get ALPA CRC count by port and ALPA
perfAddEEMonitor         Add end-to-end monitor to a port
perfDelEEMonitor         Delete an end-to-end monitor on port
perfClearEEMonitor       Clear an end-to-end monitor's counters on port
perfShowEEMonitor        Show user-defined end-to-end monitors
perfSetPortEEMask        Set overall mask for E-to-E monitors
perfShowPortEEMask       Show the current end-to-end mask
perfAddUserMonitor       Add filter-based monitor
perfAddReadMonitor       Add filter-based monitor - SCSI Read
perfAddWriteMonitor      Add filter-based monitor - SCSI Write
perfAddRWMonitor         Add monitor - SCSI Read and Write
perfAddSCSIMonitor       Add monitor for SCSI frame count
perfAddIPMonitor         Add monitor for IP traffic frame count
perfDelFilterMonitor     Delete filter-based monitor
perfClearFilterMonitor   Clear filter-based monitor's counters on port
perfShowFilterMonitor    Show filter-based monitors

NOTE: Don't run help command after firmwaredownload without reboot.
      It will give you wrong information.

switch:admin>
```

See Also

None.

perfSetPortEEMask

Set overall mask for end-to-end (EE) monitors.

Synopsis: V3.1.x

`perfSetPortEEMask` *`portnumber, "TxSIDMsk","TxDIDMsk", "RxSIDMsk","RxDIDMsk"`*

Synopsis: V4.1.x

`perfSetPortEEMask` *`[slotnumber/]portnumber, "TxSIDMsk", "TxDIDMsk","RxSIDMsk","RxDIDMsk"`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set the mask for the EE monitors of a port. This command enables a user to selectively choose the kind of Fibre Channel frames in which the number of words are to be counted.

EE monitors are defined by the `perfAddEEMonitor` command using SID and DID pairs. This command can be used to match the entire SID or DID to trigger the monitor to count Fibre Channel words. It can also be used to match one or two of the three fields (**Domain ID**, **Area ID** and **AL_PA ID**) in SID and DID pair to trigger the monitor.

The EE mask is used to set up a flag on each field to control whether the field is used to trigger the monitor.

When a flag bit is set (ff), the corresponding field will be used to qualify the triggering of the monitor. If a flag is reset (00), then that field is ignored and its value will not be used to qualify monitor-triggering.

There is only one EE mask per port. The mask is applied to all eight EE monitors available on a port. The default EE mask value upon power-on is all eight EE monitors set. When you reset mask, the counters are also reset to 0.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
TxSIDMsk	Specify the source ID mask in “dd:aa:pp“ format, where “dd“ is Domain ID mask, “aa“ is Area ID mask and “pp“ is AL_PA ID mask. For example, “00:ff:00“ uses TxSID Area ID to trigger EE monitor comparison. Specify the following values to turn on or off a specific field: 00 - Specifies that the field does not trigger EE monitors. ff - This specifies that the field triggers EE monitors. This operand must be enclosed in quotation marks. This operand is required.
TxDIDMsk	Specify the destination ID mask in “dd:aa:pp“ format. This operand must be enclosed in quotation marks. This operand is required.
RxSIDMsk	Specify the source ID mask in “dd:aa:pp“ format. This operand must be enclosed in quotation marks. This operand is required.
RxDIDMsk	Specify the destination ID mask in “dd:aa:pp“ format. This operand must be enclosed in quotation marks. This operand is required.

Example

To set the overall mask for end-to-end monitors on blade 2 port 4:

```
switch:admin> perfsetporteemask 2/4, "00:00:00", "ff:ff:ff", "00:00:ff",
"ff:00:00"
The EE mask on port 6 is set and EE counters are reset.
switch:admin>
```

See Also

perfAddEEMonitor

perfShowAlpaCrc

Displays the AL_PA CRC count by port or by AL_PA.

Synopsis: V3.1.x

`perfShowAlpaCrc` *`portnumber[, ALPA]`*

Synopsis: V4.1.x

`perfShowAlpaCrc` *`[slotnumber/]portnumber[, ALPA]`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display a specific AL_PA device CRC error count by the port or AL_PA. If the AL_PA operand is specified, only the CRC count for that AL_PA device is displayed. If the AL_PA operand is not specified, the CRC counts for all the AL_PA devices on a specified port are displayed. CRC count is a 64-bit counter. When the count is over 32 bits, the CRC count value is displayed in hexadecimal. Otherwise, CRC count is displayed in decimal format.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
ALPA	Specify the AL_PA address if you want to get the CRC errors for a particular device. This operand is optional.

Example

To display the CRC error count for all AL_PA devices on blade 2 port 4:

```
switch:admin> perfShowAlpaCrc 2/4
ALPA   CRC count
-------------------
0x01    0
switch:admin>
```

See Also

perfClrAlpaCrc

perfShowEEMonitor

Displays end-to-end monitor information and frame traffic on a port.

Synopsis: V3.1.x

`perfShowEEMonitor` *`portnumber[, interval]`*

Synopsis: V4.1.x

`perfShowEEMonitor` *`[slotnumber/]portnumber[, interval]`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display end-to-end monitor information and frame traffic on a port. This command can display (if no `interval` operand is specified):

- Key - the monitor number
- SID - Sending ID
- DID - Destination ID
- Owner_app - TELNET or WEB_TOOLS
- Owner_ip_addr - the IP address of the owner of the filter monitor
- Tx_count - Number of FC words transmitted
- Rx_count - Number of FC words received
- Crc_count - Number of frames with CRC errors

If you do not specify a value for the `interval` operand this command displays end-to-end monitor information and a cumulative count of the traffic detected by the monitor. If you specify a value for the `interval` operand, this command displays a snapshot of the traffic at the specified interval.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
interval	Specify an interval in seconds. This operand is optional.

Example

To display end-to-end monitor frame traffic on blade 4 port 5 at an interval of every 6 seconds:

```
switch:admin> perfShowEEMonitor 4/5, 6
perfShowEEMonitor 4 1: Tx/Rx are # of bytes and crc is # of crc errors
        0              1              2              3              4
  -------------  -------------  -------------  -------------  -------------
  crc    Tx    Rx  crc    Tx    Rx  crc    Tx    Rx  crc    Tx    Rx  crc    Tx    Rx
  =============  =============  =============  =============  =============
   0     0     0    0     0     0    0     0     0    0     0     0    0     0    0
   0    53m 4.9m    0    53m 4.9m    0    53m 4.9m    0    53m 4.9m    0    53m  0
   0    53m 4.4m    0    53m 4.4m    0    53m 4.4m    0    53m 4.4m    0    53m  0
   0    53m 4.8m    0    53m 4.8m    0    53m 4.8m    0    53m 4.8m    0    53m  0
   0    53m 4.6m    0    53m 4.6m    0    53m 4.6m    0    53m 4.6m    0    53m  0
   0    53m 5.0m    0    53m 5.0m    0    53m 5.0m    0    53m 5.0m    0    53m  0
   0    53m 4.8m    0    53m 4.8m    0    53m 4.8m    0    53m 4.8m    0    53m  0
   0    53m 4.5m    0    53m 4.5m    0    53m 4.5m    0    53m 4.5m    0    53m  0
   0    52m 4.5m    0    52m 4.5m    0    52m 4.5m    0    52m 4.5m    0    52m  0
   0    52m 5.0m    0    52m 5.0m    0    52m 5.0m    0    52m 5.0m    0    52m  0
   0    52m 4.5m    0    52m 4.5m    0    52m 4.5m    0    52m 4.5m    0    52m  0
   0    52m 4.6m    0    52m 4.6m    0    52m 4.6m    0    52m 4.6m    0    52m  0
```

To display EE monitors on blade 4 port 5:

```
switch:admin> perfshoweemonitor 4/5
 There are 7 end-to-end monitor(s) defined on port 5.
 KEY     SID     DID         OWNER_APP        OWNER_IP_ADDR        TX_COUNT
    RX_COUNT             CRC_COUNT
-------------------------------------------------------------------------------
  0   0x21300   0x21dda     TELNET                 N/A        0x00000004d0ba9915
    0x0000000067229e65  0x0000000000000000
  1   0x21300   0x21ddc     TELNET                 N/A        0x00000004d0baa754
    0x0000000067229e65  0x0000000000000000
  2   0x21300   0x21de0     TELNET                 N/A        0x00000004d0bab3a5
    0x0000000067229e87  0x0000000000000000
  3   0x21300   0x21de1     TELNET                 N/A        0x00000004d0bac1e4
    0x0000000067229e87  0x0000000000000000
  4   0x21300   0x21de2     TELNET                 N/A        0x00000004d0bad086
    0x0000000067229e87  0x0000000000000000
  5   0x11000   0x21fd6     WEB_TOOLS       192.168.169.40 0x00000004d0bade54
    0x0000000067229e87  0x0000000000000000
  6   0x11000   0x21fe0     WEB_TOOLS       192.168.169.40 0x00000004d0baed41
    0x0000000067229e98  0x0000000000000000
```

Note: If you do not specify an interval, the EE based monitor traffic count is displayed in 64 bit format and is cumulative.

See Also

perfAddEEMonitor

perfShowFilterMonitor

Displays filter-based monitor information and frame traffic for a port.

Synopsis: V3.1.x

```
perfShowFilterMonitor portnumber[, interval]
```

Synopsis: V4.1.x

```
perfShowFilterMonitor [slotnumber/]portnumber[,
interval]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display all the filter-based monitors defined on the specified port and the traffic count values. This command can display (if no `interval` operand is specified):

- Key - the monitor number
- Alias - the monitor alias name
- Owner_app - Telnet or Web_Tools
- Owner_ip_addr - the IP address of the owner of the filter monitor
- Frame_count - cumulative 64 bit frame count

If you do not specify a value for the `interval` operand, this command displays a cumulative count of the traffic detected by the monitor. If you specify a value for the `interval` operand, this command displays a snapshot of the traffic at the specified interval.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operand:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
interval	Specify an interval in seconds. This operand is optional.

Example

To display filter monitor traffic on blade 2 port 5 at an interval of every 6 seconds:

```
switch:admin> perfshowfiltermonitor 2/5, 6
perfShowFilterMonitor 2/5, 6
    0         1         2         3         4         5         6
 #Frames    #CMDs     #CMDs    #Frames   #Frames    #CMDs     #CMDs
-------------------------------------------------------------------
   0         0         0         0         0         0         0
  26k      187       681       682       682       494       187
  26k      177       711       710       710       534       176
  26k      184       734       734       734       550       184
  26k      182       649       649       649       467       182
  26k      188       754       755       755       567       184
  26k      183       716       716       717       534       183
  26k      167       657       656       655       488       167
  26k      179       749       749       749       570       179
  26k      164       752       752       752       588       164
  26k      190       700       700       700       510       190
  26k      181       701       701       701       520       181
  26k      200       750       750       751       550       201
  26k      180       692       692       691       512       179
  26k      179       696       696       696       517       179
  26k      187       720       720       720       533       187
  26k      200       722       722       722       522       200
  26k      204       717       717       717       513       204
```

To display filter monitor information on blade 2 port 5:

```
switch:admin> perfshowfiltermonitor 2/5
There are 7 filter-based monitors defined on port 5.

KEY   ALIAS    OWNER_APP       OWNER_IP_ADDR     FRAME_COUNT
-------------------------------------------------------------------
 0   SCSI_Frame TELNET               N/A       0x00000000002c2229
 1   SCSI_WR    TELNET               N/A       0x000000000000464a
 2   SCSI_RW    TELNET               N/A       0x000000000000fd8c
 3   SCSI_RW    WEB_TOOLS       192.168.169.40 0x0000000000007ba3
 4   SCSI_RW    WEB_TOOLS      192.168.169.190 0x0000000000004f0e
 5   SCSI_RD    WEB_TOOLS       192.168.169.40 0x0000000000002208
 6   SCSI_WR    WEB_TOOLS       192.168.169.40 0x000000000000033a
switch:admin>
```

Note: If you do not specify an interval the filter based monitor frame count is displayed in 64 bit format and is cumulative.

See Also

perfAddUserMonitor

perfShowPortEEMask

Displays the current end-to-end mask of a port.

Synopsis: V3.1.x

`perfShowPortEEMask` *portnumber*

Synopsis: V4.1.x

`perfShowPortEEMask` *[slotnumber/]portnumber*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the current end-to-end mask of a port. There are only two commands that can modify the value of the EE mask, `perfSetPortEEMask` and `perfCfgRestore`.

The end-to-end mask has 12 fields:

```
TxSID Domain:  on
TxSID Area:    on
TxSID ALPA:    on
TxDID Domain:  on
TxDID Area:    on
TxDID ALPA:    on
RxSID Domain:  on
RxSID Area:    on
RxSID ALPA:    on
RxDID Domain:  on
RxDID Area:    on
RxDID ALPA:    on
```

The fields that are marked on are used to trigger end-to-end monitors. The default value of the EE mask is all fields set on.

Note: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operand:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the port end-to-end mask on blade 2 port 4:

```
switch:admin> perfShowPortEEMask 2/4
TxSID Domain:  on

TxSID Area:    on
TxSID ALPA:    off
TxDID Domain:  on
TxDID Area:    on
TxDID ALPA:    off
RxSID Domain:  on
RxSID Area:    on
RxSID ALPA:    off
RxDID Domain:  on
RxDID Area:    on
RxDID ALPA:    off

switch:admin>
```

See Also

perfAddEEMonitor
perfDelEEMonitor
perfShowEEMonitor
perfSetPortEEMask
perfShowPortEEMask

pkicreate

Create pki objects.

Synopsis

```
pkicreate
```

Availability

Admin

Release

V4.1.x

Description

Use this command in non-secure mode to create pki objects:

- Switch private key and CSR
- Private key passphrase
- Install root certificate

This command does not create the switch certificate. The switch certificate should be obtained offline from Certificate Authority.

In secure mode this command will exit with a warning and will not create pki objects.

Operands

None.

Example

To create pki objects in non-secure mode:

```
switch:admin> pkicreate
Installing Private Key and Csr...
Switch key pair and CSR generated...
Installing Root Certificate...
switch:admin>
```

If run in secure mode the following error message is displayed:

```
switch:admin> pkicreate

Warning !! Switch is in secure mode.
Can not create new Pki Objects. Exiting...
```

See Also

None.

pkiremove

Remove existing pki objects.

Synopsis

```
pkiremove
```

Availability

Admin

Release

V4.1.x

Description

Use this command to remove of pki objects in non secure mode. It removes switch private key, private key passphrase, CSR, root certificate and switch certificate.

In secure mode, it displays a message and does not remove pki objects.

Operands

None.

Example

To remove pki objects in non-secure mode:

```
switch:admin> pkiremove

WARNING!!!

Removing Pki objects will impair the security functionality of this fibre
channel switch. If you want secure mode enabled, you will need to get the
switch certificate again.

About to remove Pki objects.
ARE YOU SURE (yes, y, no, n): [no] y
All PKI objects removed.
switch:admin>
```

If run in secure mode the following error message is displayed:

```
switch:admin> pkiremove

This Switch is in secure mode.
Removing Pki objects is not allowed. Exiting...
```

See Also

None.

pkishow

Displays existing pki objects.

Synopsis

```
pkishow
```

Availability

Admin

Release

V4.1.x

Description

Use this command to display existence of pki objects i.e. switch private key, private key passphrase, CSR, root certificate and switch certificate.

Operands

None.

Example

To view pki objects:

```
switch:admin> pkishow
Passphrase      : Exist
Private Key     : Exist
CSR             : Exist
Certificate     : Empty
Root Certificate: Exist
switch:admin>
```

See Also

None.

portcamshow

Displays port based filter CAM utilization.

Synopsis: V3.1.x

```
portcamshow [portnumber]
```

Synopsis: V4.1.x

```
portcamshow [slotnumber/][portnumber]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display the current filter CAM utilization of all ports or one port specified at input.

The following information is displayed:

SID used	Displays the total number of CAM entries used by this port. Please note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
DID used	Displays the total number of CAM entries used by this port. Please note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
SID entries	Displays all existing Source ID entries within the CAM per quad. Please note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
DID entries	Displays all existing Destination ID entries within the CAM per quad. Please note that each CAM entry (either SID or DID CAM) can be among ports in the same quad.
SID Free	Displays the total number of free SID CAM entries per quad.
DID Free	Displays the total number of free DID CAM entries per quad.

Operands

This command has the following operand:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the filter CAM utilization for all ports on a switch:

```
switch:admin> portcamshow
Port 0 to Port 15:
----------------------------
Port     SID used  DID used
 0         0         0
 1         0         0
 2         0         0
 3         0         0
 4         0         0
 5         0         0
 6         0         0
 7         0         0
 8         0         0
 9         0         0
10         0         0
11         0         0
12         0         0
13         0         0
14         0         0
15         0         0
----------------------------
Quad ports (SID Free, DID Free)
0-3 (64, 512)  4-7 (64, 512)  8-11 (64, 512)  12-15 (64, 512)
switch:admin>
```

To display the filter CAM utilization for a single port on a switch:

```
switch:admin> portcamshow 3
-------------------------------------------------
Area  SID used  DID used  SID entries  DID entries
 3      3         4       220100       2b23e8
                          220800       2b23e2
                          220c00       2b23e0
                          2b23e4
-------------------------------------------------
Quad ports (SID Free, DID Free)
0-3 (61, 508)
switch:admin>
```

See Also

portzoneshow

switchshow

portcfgdefault

Restore the port configuration to default values.

Synopsis: V3.1.x

`portcfgdefault` *`portnumber`*

Synopsis: V4.1.x

`portcfgdefault` *`[slotnumber/]portnumber`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to reset any special configuration values on a port to their factory defaults. You can view the current port configuration using the `portcfgshow` command.

Operands

This command has the following operand:

`slotnumber` (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
`portnumber`	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

The following example configures switch port 3 on blade 1 to factory defaults:

```
switch:admin> portcfgdefault 1/3
Committing configuration...done.
```

See Also

portcfgeport
portcfggport
portcfglongdistance
portcfgpersistentdisable
portcfgpersistentenable
portcfglport
portcfgspeed
portcfgshow
portcfgtrunkport

portCfgEport

Enable or disable a port from becoming an E_Port.

Synopsis: V3.1.x

`portCfgEport` *`portnumber, mode`*

Synopsis: V4.1.x

`portCfgEport` *`[slotnumber/]portnumber, mode`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command allows a user to enable or disable a port from becoming an E_Port. The E_Port capability is enabled by default unless this command is used to disable it.

When a port is configured as a non-E_Port through this command, an ISL connected to this port will be segmented. No data traffic between two switches will be routed through this port. Fabric management data, such as zoning information, will not be exchanged through this port either.

The configuration is saved in the non-volatile memory and is persistent across switch reboot or power cycle.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
mode	Specify 1 to enable the port to become an E_Port. This is the default port state. Specify 0 to disable the port from becoming an E_Port. When the port_number operand is present, this operand must also be present.

When no operands are specified, the command reports a list of ports that are disabled from becoming E_Ports.

Example

To disable blade 2 port 3 from becoming an E_Port:

```
switch:admin> portCfgEport 2/3, 0
Committing configuration...done.
switch:admin> portCfgEport
Ports:   0   1   2   3   4   5   6   7
       --------------------------------
         -   -   -   NO  -   -   -   -
```

See Also

portShow

switchShow

portCfgGport

Designate a port as a locked G_Port.

Synopsis: V3.1.x

`portCfgGport` *`portnumber, mode`*

Synopsis: V4.1.x

`portCfgGport` *`[slotnumber/]portnumber, mode`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command enables a user to designate a port as a locked G_Port. Once this is done, the switch attempts to initialize that port as an F_Port only, and does not attempt loop initialization (FL_Port) on the port. However, if the device attached to the port initiates loop communication, then the switch responds accordingly and the port can then become an FL_Port. Similarly, a port designated as a G_Port can become an E_Port.

Locking a port as a G_Port only changes the actions initiated by the switch; it does not change how the switch responds to initialization requests.

The configuration is saved in the non-volatile memory and is persistent across switch reboot or power cycle.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
mode	Specify a value of 1 to designate the port as a G_Port or specify a value of 0 to remove the G_Port designation from the port. A value of 0 is the default port state. This operand is required.

Example

The following example configures blade 2 port 3 as a locked G_Port:

```
switch:admin> portCfgGport 2/3, 1
done.
```

See Also

configure

portCfgShow

portShow

switchShow

portcfgislmode

Enable or disable ISL R_RDY Mode on a port.

Synopsis: V3.1.x

```
portcfgislmode portnumber, [1 | 0]
```

Synopsis: V4.1.x

```
portcfgislmode [slotnumber/]portnumber, [1 | 0]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable or disable ISL R_RDY Mode on a port. If enabling ISL R_RDY Mode on a port make sure the PID format is consistent across the entire fabric. Refer to the `configure` command for more information on the Core PID format.

Use the `portcfgshow` command to view the enabled modes on a port.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
[1 | 2]	Specify 1 to enable ISL R_RDY mode. Specify 0 to disable ISL R_RDY mode. This operand is required.

Example

To enable ISL R_RDY mode on switch port 3:

```
switch:admin> portcfgislmode 3, 1
Committing configuration...done.
ISL R_RDY Mode is enabled for port 3. Please make sure the PID
formats are consistent across the entire fabric.
switch:admin>
```

To disable ISL R_RDY mode on switch port 3:

```
switch:admin> portcfgislmode 3, 0
Committing configuration...done.
switch:admin>
```

See Also

portCfgShow

portCfgLongDistance

Configure a port to support long distance links.

Synopsis: V3.1.x

```
portCfgLongDistance portnumber[, "distance"]
```

Synopsis: V4.1.x

```
portcfglongdistance [slotnumber/]portnumber
[distance_level][vc_translation_link_init]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description V3.1.x

Use this command to specify the allocation of enough full size frame buffers on a particular port to support a long distance link of up to 100 km. The port is used as an E_Port. The configuration is saved in the non-volatile memory and is persistent across switch reboot or power cycle.

When this command is invoked without the optional operand, you are prompted to enter the long distance level number. The level value must be one of the following:

- L0: Deconfigure the port to be a regular switch port. This option supports up to 10-km links for 1 Gbps, or 5-km links for 2 Gbps.
- LE: Level E mode is for E_Ports for distances beyond 5 km and up to 10 km, especially for 2 Gbps link speeds. LE does not require extended fabric license.
- L1: Level one long distance, up to 50 km.
- L2: Level two long distance, up to 100 km.

When a port is configured to be a long distance port, the output of `portShow` and `switchShow` displays the long distance level. In the `portShow` output, the long distance level is indicated as “medium” for level 1 long distance, and

"long" for level 2 long distance. In the `switchShow` output, the format is `Lx`, where `x` is the long distance level number, except for level 0, which is not displayed in `switchShow`.

The *`vc_translation_link_init`* operand only applies to long distance setup, it does not affect normal link. It is added to ensure the long distance link initialization sequence. It is not required for long distance, but may be useful when initiating L1 and L2 links.

Note: The Extended Fabrics license key is required to use the full functionality of this command. Refer to the *HP StorageWorks Extended Fabric Version 3.1.x/4.1.x User Guide* for more information.

Description V4.1.x

Use this command to allocate enough full size frame buffers on a particular port to support a long distance link up to 100km. The port can only be used as an E_Port. The configuration is saved in the non-volatile memory and is persistent across switch reboot or power cycle.

The value of *`distance_level`* can be one of the following (the numerical value representing each *`distance_level`* is shown in parentheses):

- L0 (0): Re-configure the port to be a regular switch port. The number of buffers reserved for the port supports up to 10km links.
- L0.5: Level 0.5 (`switchshow` and `portcfgshow` show two letter code as LM) long distance, up to 25km. A total of 15 or 30 full size frame buffers will be reserved for the port at speeds of 1 Gbit/sec and 2 Gbit/sec respectively.
- L1 (1): Level one long distance, up to 50km. A total of 24 or 50 full size frame buffers will be reserved for the port at speeds of 1 Gbit/sec and 2 Gbit/sec respectively.
- L2 (2): Level two long distance, up to 100km. A total of 58 or 63 full size frame buffers will be reserved for the port at speeds of 1 Gbit/sec and 2 Gbit/sec respectively.
- LE (3): Level E mode is for E ports for distances beyond 5km and up to 10km especially for 2G link speeds. A total of 7 or 13 full size frame buffers will be reserved for the port at speeds of 1 Gbit/sec and 2 Gbit/sec respectively. LE does not require extended fabric license.

- LD: Dynamic long distance configuration. The buffer credits for the given E-port are automatically configured based on the actual link distance. Up to a total of 63 full size frame buffers will be reserved depending upon the distance measured during E-port initialization.

The option “VC Translation Link Init” is used to enable the long distance link initialization sequence. By default this option is set to 0 (disabled).

An input of **Ctrl-D** cancels the configuration update.

When a port is configured to be a long distance port, the output of `portshow` and `switchshow` will print the long distance level. In the `portshow` output, the long distance level is indicated as follows,

- L0 - normal
- LE - standard <= 10km
- L0.5(LM) - medium long <= 25km
- L1 - long <= 50km
- L2 - super long <= 100km
- LD - auto

In the `switchshow` output, the long distance mode is displayed as “Lx,” where x is the second letter in two letter distance level code described above.

Note: Trunking is not supported with LE, L1, and L2 `portcfglongdistance` modes. Trunking is supported for normal E_Ports (referred to as L0 in `portcfglongdistance` command) with LWL media up to 5km at the full speed permitted by the link. With LWL media, the throughput begins to fall off beyond 5km, due to normal latency effects.

Refer to the *HP StorageWorks Extended Fabric Version 3.1.x/4.1.x User Guide* for more information.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
distance (V3.1.x only)	This operand indicates the distance to the connected port. This operand is required. The valid values for this operand are: ■ L0: Deconfigure the port to be a regular switch port. This option supports up to 10-km links for 1 Gbps, or 5-km links for 2 Gbps. ■ LE: Level E mode is for E_Ports for distances beyond 5 km and up to 10 km especially for 2 Gbps link speeds. LE does not require extended fabric license. ■ L1: Level one long distance, up to 50 km. ■ L2: Level two long distance, up to 100 km.

distance_level (V4.1.x only)	This operand indicates the distance to the connected port. This operand is required. The valid values for this operand are: L0: Re-configure the port to be a regular switch port. The number of buffers reserved for the port supports up to 10km links. LE: Level E mode is for E ports for distances beyond 5km and up to 10km especially for 2G link speeds. L0.5 (LM): Level 0.5 long distance, up to 25km. L1: Level one long distance, up to 50km. A total of 26 full size frame buffers will be reserved for the port. L2: Level two long distance, up to 100km. A total of 60 full size frame buffers will be reserved for the port. LD: Automatic long distance configuration.
VC_Translation_Link_Init (V4.1.x only)	Specify 1 to activate long distance link initialization sequence. Specify 0 to deactivate this mode. The default value is 0 (disabled). This operand is optional.

Limitations

Since the total number of frame buffers is limited in quad, when one of the ports in the quad is configured as a long distance port, all remaining ports must be level zero ports only (i.e., none of the remaining ports in the quad can be a long distance port). Further more, if one port is configured as a level 2 long distance port, none of the remaining ports in the quad can be used as an E_Port.

A quad is defined as a group of four adjacent ports that share a common pool of frame buffers. Port 0-3 belong to a quad, so do port 4-7, etc.

Refer to the *HP StorageWorks Extended Fabric Version 3.1.x/4.1.x User Guide* for more information on limitations in port configurations.

Example

The following example is for a 50 km link on a port in a V3.1.x switch:

```
switch:admin> portCfgLongDistance 3, "L1"
done.
```

The following example configures the switch port 4/15 to support a 100km link and be initialized using long distance link initialization protocol. with V4.1.x:

```
switch:admin> portcfglongdistance 4/15 L2 1
done.
switch:admin> portshow 4/15
portCFlags: 0x1
portFlags: 0x20001       PRESENT LED
portType:  1.1
portState: 2    Offline
portPhys:  4    No_Light
portScn:   0
portId:    013f00
portWwn:   20:3f:00:60:69:00:02:48
Distance:  super long <= 100km
portSpeed: 2Gbps

Interrupts:        9          Link_failure: 0          Frjt:          0
Unknown:           0          Loss_of_sync: 0          Fbsy:          0
Lli:               9          Loss_of_sig:  9
Proc_rqrd:         0          Protocol_err: 0
Timed_out:         0          Invalid_word: 0
Rx_flushed:        0          Invalid_crc:  0
Tx_unavail:        0          Delim_err:    0
Free_buffer:       0          Address_err:  0
Overrun:           0          Lr_in:        0
Suspended:         0          Lr_out:       0
Parity_err:        0          Ols_in:       0
2_parity_err:      0          Ols_out:      0
CMI_bus_err:       0
```

See Also

configure

portShow

switchShow

portCfgLport

Lock a port as an L_PORT.

Synopsis: V3.1.x

`portCfgLport` *`portnumber, lockmode[, privatemode]`*

Synopsis: V4.1.x

`portCfgLport` *`[slotnumber/]portnumber, lockmode[, privatemode]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to designate a port as an L_PORT. The switch will then only attempt to initialize that port as an FL_PORT. The switch never attempts point-to-point (F_PORT) initialization on the port. However, if the device attached to the port initiates point-to-point communication, then the switch will respond accordingly, and the port may then become an F_PORT.

Similarly, being locked as an L_PORT will not prevent the port from becoming an E_PORT. Locking a port as an L_PORT only affects what actions the switch initiates. It does not change how the switch responds to initialization requests.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
lockmode	Specify 1 to configure the specified port as a locked L_PORT. Specify 0 to de-configure the specified port from its previous role as a locked L_PORT. This operand is required.
privatemode	Specify 1 to configure the L_PORT as a private L_PORT (then FLOGI will be rejected). Specify 0 to configure the L_PORT as a normal public L_PORT. The default value is 0. This operand is optional.

Example

To configure switch blade 2 port 3 as a locked L_PORT:

```
switch:admin> portCfgLport 2/3, 1
done.
```

See Also

configure

portShow

switchShow

portcfgpersistentdisable

Disable a port persistently.

Synopsis

`portcfgpersistentdisable` *`portnumber`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to persistently disable a port. Persistently disabled ports remain disabled across power cycles, switch reboots, and switch enables. By default a port is enabled persistently. The change in configuration is effective immediately.

The persistent disable configuration overrides all other port configurations but it does not change the configuration of any other port settings. Use the `portcfgpersistentenable` command to enable a port persistently. A persistent enabled port re-enables all previously set port configurations of that port.

The switch will still run the power on diagnostics and initialize a persistently disabled port. A persistently disabled port can temporarily be enabled by `portenable` command. The `switchenable` command will not enable the persistently disabled ports of that switch.

The persistent switch disable or enable configuration does not alter the persistent disable or enable configurations of the ports within the switch.

Like all other configurable port attributes, port persistent disable will not be affected by `configdefault` command. But it will be cleared by `portcfgdefault` command, because a port, by default, is enabled persistently.

Operands

This command has the following operands:

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

When no operand is specified, the command reports the current port persistent disable status for all ports in the switch. The value of YES is displayed for ports that are persistently disabled.

Example

To configure port 3 as persistently disabled:

```
switch:admin> portcfgpersistentdisable 3
Committing configuration...done.
switch:admin> portcfgpersistentdisable
Ports:   0   1   2   3   4   5   6   7
       --------------------------------
Disabled -   -   -   YES -   -   -   -
switch:admin>
```

See Also

configure

configshow

configdefault

portcfgdefault

portcfgpersistentenable

portcfgshow

portshow

switchshow

portcfgpersistentenable

Enable a port persistently.

Synopsis

`portcfgpersistentenable` *portnumber*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to persistently enable a port. Persistently enabled ports remain enabled across power cycles, switch reboots, and switch enables. By default a port is enabled persistently. The change in configuration is effective immediately.

The persistent disable configuration overrides all other port configurations but it does not change the configuration of any other port settings. A persistent port enable will re-enable all previously set port configurations of that port. A persistently enabled port can temporarily be disabled by `portdisable` or `switchdisable` command. The `switchdisable` command will also disable the persistently enabled ports of that switch.

The persistent switch disable or enable configuration does not alter the persistent disable or enable configurations of the ports within the switch.

The configuration commands, `configdefault` and `portcfgdefault`, do not modify the persistent enable attribute of a port.

Operands

This command has the following operands:

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

When no operand is specified, the command reports the current port persistent enabled status for all ports in the switch. The value of YES is displayed for ports that are persistently enabled.

Example

To configure port 3 as persistently enabled:

```
switch:admin> portcfgpersistentenable 3
Committing configuration...done.
switch:admin> portcfgpersistentenable
Ports:   0   1   2   3   4   5   6   7
       --------------------------------
Enabled  -   -   -   YES -   -   -   -
switch:admin>
```

See Also

configure

configshow

configdefault

portcfgdefault

portcfgpersistentdisable

portcfgshow

portshow

switchshow

portCfgShow

Displays port configuration settings.

Synopsis: V3.1.x

`portCfgShow` *`[portnumber]`*

Synopsis: V4.1.x

`portCfgShow` *`[slotnumber/][portnumber]`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the current configuration of all ports. If no operand is specified, all the port configuration settings are displayed for that switch, or for the StorageWorks Core logical switch.

The following configuration information is displayed:

- Port Speed is displayed as 1G, 2G, or AN (when in Auto speed Negotiation mode). This value is set by the `portCfgSpeed` command.
- Trunk Port is displayed as ON when port is set for trunking or blank (--) when trunking is disabled on the port. This value is set by the `portCfgTrunkport` command.
- The Long Distance setting of the port is shown as blank (--) when long distance mode is off, L1 when the link is up to 50 Km, or L2 when the link is up to 100 Km. This value is set by the `portCfgLongDistance` command.
- VC Link Init setting of the port is shown as blank (..) when the long distance link initialization option is turned off and (ON) when it is turned on for long distance mode. This value is set by the `portcfglongdistance` command.

- Locked L_Port is displayed as ON when port is locked to L_Port only or blank (--) when L_Port lock mode is disabled (and it behaves as a U_Port). This value is set by the `portCfgLport` command.
- Locked G_Port is displayed as ON when port is locked to G_Port only or blank (--) when G_Port lock mode is disabled (and it behaves as a U_Port). This command is set by the `portCfgGport` command.
- Disabled E_Port is displayed as ON when port is not allowed to be an E_Port or blank (--) when the port is allowed to function as an E_Port. This command is set by the `portCfgEport` command.
- Mcast LoopBack mode (V4.1.x only) is displayed as blank (..) when Mcast LoopBack mode is off, and (ON) when Mcast LoopBack mode is enabled.
- Persistent Disable is displayed as ON when the port is disabled across reboots or power cycles or (..) when the port is allowed to function normally. This mode is set by the `portcfgpersistentdisable` command.
- ISL R_RDY Mode is displayed as ON when the port has been R_RDY mode enabled or blank (--) when the port is allowed to function as an E_Port. This mode is set by the `portcfgislmode` command.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

Example

To display the configuration settings of ports on a switch in V3.1.x:

```
switch:admin> portcfgshow
Ports                0  1  2  3    4  5  6  7
-------------------+--+--+--+--+----+--+--+--
Speed              2G 2G 2G 2G   2G 2G 2G 2G
Trunk Port         .. .. ON ON   ON ON ON ON
Long Distance      .. .. .. ..   .. .. .. ..
VC link init       .. .. .. ..   .. .. .. ..
Locked L_Port      .. .. .. ..   .. .. .. ..
Locked G_Port      .. .. .. ..   .. .. .. ..
Disabled E_Port    .. .. .. ..   .. .. .. ..
Persistent Disable .. .. .. ..   .. .. .. ..
ISL R_RDY Mode     .. .. .. ..   ON .. ON ..
                   where AN:AutoNegotiate, ..:OFF, ??:INVALID.
                         LM:L0.5
switch:admin>
```

See Also

portCfgEport

portCfgGport

portCfgLport

portCfgLongDistance

portCfgTrunkport

portCfgSpeed

portCfgSpeed

Configure the port speed level.

Synopsis: V3.1.x

`portCfgSpeed` *`portnumber, speed_level`*

Synopsis: V4.1.x

`portCfgSpeed` *`[slotnumber/]portnumber, speed_level`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to configure the speed of a port to a particular level. After this command is issued, the port is disabled and enabled so that the port comes up with the new speed setting. The configuration is saved in the non-volatile memory and is persistent across switch reboots or power cycles.

If the command is specified without an operand, you are prompted to enter the speed value.

The output of the `portShow` command displays the current achieved speed of a port and the `portCfgShow` command displays the user desired speed setting for a port.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
speed_level	Specify the speed of a port. This operand is required. Valid values are one of the following: 0 - Auto-sensing mode. The port automatically configures for the highest speed. 1 - 1Gbps mode. The port will be at fixed speed of 1 Gbps. 2 - 2Gbps mode. The port will be at fixed speed of 2 Gbps.

Example

To configure the speed of blade 2 port 5 to 2 Gbps:

```
switch:admin> portCfgSpeed 2/5, 2
done.
```

See Also

portShow

switchCfgSpeed

portCfgTrunkport

Configure a port to be enabled or disabled for trunking.

Synopsis: V3.1.x

`portCfgTrunkport` *`portnumber, mode`*

Synopsis: V4.1.x

`portCfgTrunkport` *`[slotnumber/]portnumber, mode`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable or disanble a port for trunking.

Note: This command requires a Trunking license.

Operands

This command has the following operand:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
mode	Specify 1 to enable this port for trunking. Specify 0 to disable this port for trunking. This operand is required.

Example

To enable switch blade 2 blade 5 for trunking:

```
switch:admin> portCfgTrunkport 2/5, 1
done.
```

See Also

switchCfgTrunk

portShow

portCfgShow

switchShow

portdebug

Set debug level and verbose level of port modules.

Synopsis

`portdebug` *`dbg_lvl, vbs_lvl`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set the debug level and verbose level of port modules.

Operands

This command has the following operands:

`dbg_lvl`	Specify the debug level to be set for port modules. Valid values are 1–5.
`vbs_lvl`	Specify the verbose level to be set for port modules. Valid values are 1–5.

Example

The following example shows how portdebug can be used to set debug level and verbose level of port modules:

```
switch:admin> portdebug 3, 4
```

See Also

dbgshow

setdbg

portDisable

Disable a switch port.

Synopsis: V3.1.x

```
portDisable portnumber
```

Synopsis: V4.1.x

```
portDisable [slotnumber/]portnumber
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to disable a switch port. If the port is connected to another switch, the fabric may reconfigure. If the port is connected to one or more devices, the devices can no longer communicate with the fabric.

If the port was online before being disabled, a state transition will be indicated in the following ways: RSCN, SNMP trap, Web pop-up window.

The front panel LED of a disabled port flashes yellow with a two second cycle.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To disable blade 2 port 4:

```
switch:admin> portDisable 2/4
```

See Also

`portEnable`

portcfgpersistentdisable

portcfgpersistentenable

`portShow`

`switchShow`

portEnable

Enable a switch port.

Synopsis: V3.1.x

`portEnable` *`portnumber`*

Synopsis: V4.1.x

`portEnable` *`[slotnumber/]portnumber`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable a switch port. If the port is connected to another switch, the fabric may reconfigure. If the port is connected to one or more devices, the devices can communicate with the fabric.

For ports that come online after being enabled, the following indications may be sent to indicate a state transition: RSCN, SNMP trap, Web pop-up window.

The front panel LED of an enabled and online port is green.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To enable blade 2 port 4:

```
switch:admin> portEnable 2/4
```

See Also

portDisable

portcfgpersistentdisable

portcfgpersistentenable

portShow

switchShow

portErrShow

Displays port error summary.

Synopsis

```
portErrShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display an error summary for all ports. The display contains one output line per port and shows error counters in ones, thousands (K), or millions (M).

The following fields are displayed:

frames tx	Frames transmitted.
frames rx	Frames received.
enc in	Encoding errors inside frames.
crc err	Frames with CRC errors.
too shrt	Frames shorter than minimum.
too long	Frames longer than maximum.
bad eof	Frames with bad end-of-frame delimiters.
enc out	Encoding error outside of frames.
disc c3	Class 3 frames discarded.
link fail	Link failures (LF1 or LF2 states).
loss sync	Loss of synchronization.
loss sig	Loss of signal.

frjt	Frames rejected with F_RJT.
fbsy	Frames busied with F_BSY.

Operands

None.

Example

Notice in the example below that port 6 has a high number of errors and should be examined:

```
switch:admin> portErrShow
       frames    enc crc too  too  bad enc disc  link loss loss frjt fbsy
       tx   rx    in err shrt long eof out   c3  fail sync
sig ------------------------------------------------------------------------
  0:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
  1:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
  2:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
  3:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
  4:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
  5:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
  6:   61k  48     2  15    0    0   0   3k   0     0    2    0    0    0
  7:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
  8:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
  9:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
 10:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
 11:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
 12:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
 13:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
 14:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
 15:    0    0     0   0    0    0   0   0    0     0    0    1    0    0
```

See Also

portShow

portStatsShow

portflagsshow

Displays the port status bitmaps for all ports in a switch

Synopsis

```
portflagsshow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the following status for a port:

SNMP	Displays whether the port is online or offline.
Physical	Displays the port physical status. Valid values are In_Sync and No_Light.
Flags	Displays whether there is a SFP inserted in the port, whether the port is active, and the port type.

Options

None.

Example

To display the port status for all ports in the switch:

```
switch:admin> portflagsshow
Port SNMP      Physical   Flags
--------------------------------
 0: Offline   No_Module  PRESENT U_PORT LED
 1: Offline   No_Module  PRESENT U_PORT LED
 2: Offline   No_Light   PRESENT U_PORT LED
 3: Offline   No_Light   PRESENT U_PORT LED
 4: Offline   No_Light   PRESENT U_PORT LED
 5: Offline   No_Module  PRESENT U_PORT LED
 6: Offline   No_Module  PRESENT U_PORT LED
 7: Offline   No_Module  PRESENT U_PORT LED
 8: Offline   No_Module  PRESENT U_PORT LED
 9: Offline   No_Module  PRESENT U_PORT LED
10: Offline   No_Module  PRESENT U_PORT LED
11: Offline   No_Module  PRESENT U_PORT LED
12: Offline   No_Module  PRESENT U_PORT LED
13: Offline   No_Module  PRESENT U_PORT LED
14: Offline   No_Module  PRESENT U_PORT LED
15: Offline   No_Module  PRESENT U_PORT LED
16: Online    UNKNOWN    PRESENT ACTIVE G_PORT U_PORT
switch:admin>
```

See Also

None.

portLEDTest

Exercise the user port LEDs.

Synopsis

`portLEDTest` *`[-npass count][-ports itemlist]`*

Availability

Admin

Release

V4.1.x

Description

Use this command to exercise the user port LEDs in the current switch ON/OFF by setting the ATTN LEDs to green for the ON condition and black for the OFF condition. The SPEED LEDs are initially set to black before the command execution. The SPEED LEDs are set to green once the command is executing.

You must disable the current switch (using the `switchdisable` command) before running this command. After the command had completed, the ATTN LEDs flash amber indicating the command has finished and exited. You can enable the current switch (using the `switchenable` command) to set the ATTN LEDs back to black.

Options

This command has the following operands:

`-npass count`	Specify the number of times to perform this test. The default value is 10.
`-ports itemlist`	Specify a list of user ports to run the test. If omitted, all the active ports in the switch are assumed. For more information refer to the `itemlist` command.

Example

To test port LEDs:

```
switch:admin> portledtest -ports 1/1-1/5
passed.
switch:admin>
```

See Also

itemlist

ledtest

switchdisable

switchenable

portLogClear

Clear the port log.

Synopsis

```
portLogClear
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to clear the port log.

You may want to clear the port log before triggering an activity so that the log displays only the activity related to that activity. See `portLogShow` for a description of the port log.

If the port log is disabled, the following message appears as the first line.

```
WARNING: port log is disabled
```

If the port log is disabled, `portLogClear` enables it. Certain errors automatically disable the port log to preserve information needed to understand the error (new events are not collected so that existing information is not overwritten).

Operands

None.

Example

To clear the port log:

```
switch:admin> portLogClear
switch:admin> portLogShow
port log is empty
switch:admin>
```

Errors

The following errors disable the port log:

```
FCIU, IUBAD
FCIU, IUCOUNT
FCPH, EXCHBAD
FCPH, EXCHFREE
NBFSM, DUPEPORTSCN
UCAST, RELICPDB
```

See Also

portLogDump

portLogShow

portLogDump

Displays the port log without page breaks.

Synopsis

`portLogDump` *`[count[, saved[, portid]]]`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the port log, listing all entries in the log without page breaks. This command displays the same information as `portLogShow`, but `portLogShow` prompts the user to enter "returns" between each page.

Port logs are circular log files in the switch firmware, which can save up to 1024 entries per logical switch in V3.1.x and up to 8000 entries per logical switch in V4.1.x. Once the log is full, the newest log entries delete the oldest log entries. Port logs capture switch-to-device, device-to-switch, switch-to-switch, some device-to-device1 and control information.

See `portLogShow` for a description of the port log.

If the port log is disabled, the following message appears as the first line (see `portLogClear` for details):

```
WARNING: port log is disabled
```

The following information is displayed for each log entry:

Time	Displays the event date and time in milliseconds.
Task	Displays the name of the internal switch procedure that logged the event.
Event	Displays the task event that generated log entry.
Port #	Displays the Port number that logged the event.

Cmd	Defined by the event. Refer to the *HP StorageWorks Fabric Operating System Procedures Version 3.1.x/4.1.x User Guide* for more information.
Args	Displays more information about the event. For ioctl events, these are the I/O control arguments For Tx and Rx, these are the first two header words and word four of the FC-PH frame along with the first word of the **payload and internal decoding** field.

For a full explanation of the information displayed by this command refer to the *HP StorageWorks Fabric Operating System Procedures Version 3.1.x/4.1.x User Guide*.

Operands

This command has the following operands:

count	Specify the maximum number of lines to be displayed. Only the most recent count entries are displayed. This operand is optional.
saved	Specify a nonzero value to display the saved port log from the last switch fault. See `uptime` for conditions that cause a fault. The `count` operand is ignored when displaying the saved log. This operand is optional.
portid	Specify the port to be displayed. All other ports will not be displayed. This operand is optional.

Example

To display the port log:

```
switch:admin> portlogdump 10
time          task       event port  cmd  args
--------------------------------------------------
16:51:15.499  tShell     ioctl    7   de  10f9bb90,0
16:51:15.499  tShell     ioctl    8   de  10f9bb90,0
16:51:15.499  tShell     ioctl    9   de  10f9bb90,0
16:51:15.499  tShell     ioctl   10   de  10f9bb90,0
16:51:15.499  tShell     ioctl   11   de  10f9bb90,0
16:51:15.499  tShell     ioctl   12   de  10f9bb90,0
16:51:15.499  tShell     ioctl   13   de  10f9bb90,0
16:51:15.499  tShell     ioctl   14   de  10f9bb90,0
16:51:15.499  tShell     ioctl   15   de  10f9bb90,0
16:58:28.383  tShell     create          tSyslog
switch:admin>
```

See Also

portLogClear
portLogShow
uptime

portLogDumpPort

Displays the port log of specified port, without page breaks.

Synopsis: V3.1.x

`portLogDumpPort` *`port`*

Synopsis: V4.1.x

`portLogDumpPort` *`portid`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the port log of specified port. The command displays all entries in the log without any page breaks. It is identical to `portLogShowPort`, except that `portLogShow` prompts the user to type return between each page of output.

Port logs are circular log files in the switch firmware, which can save up to 1024 entries per logical switch in V3.1.x and up to 8000 entries per logical switch in V4.1.x. Once the log is full, the newest log entries delete the oldest log entries. Port logs capture switch-to-device, device-to-switch, switch-to-switch, some device-to-device1 and control information.

If the port log is disabled, the following message is printed as the first line. See the `portLogClear` command for more information.

```
WARNING: port log is disabled
```

See `portLogShow` for a description of the port log.

The following information is displayed for each log entry:

Time	Displays the event date and time in milliseconds.
Task	Displays the name of the internal switch procedure that logged the event.

Event	Displays the task event that generated log entry.
Port #	Displays the Port number that logged the event.
Cmd	Defined by the event. Refer to the *HP StorageWorks Fabric Operating System Procedures Version 3.1.x/4.1.x User Guide* for more information.
Args	Displays more information about the event. For ioctl events, these are the I/O control arguments For Tx and Rx, these are the first two header words and word four of the FC-PH frame along with the first word of the **payload and internal decoding** field.

For a full explanation of the information displayed by this command refer to the *HP StorageWorks Fabric Operating System Procedures Version 3.1.x/4.1.x User Guide*.

Operands

This command has the following operands:

port (V3.1.x only)	Specify the port you want to display the port log for. Valid input varies depending on switch type.
portid (V4.1.x only)	Specify the area number of port to be displayed. If a port area number is specified, all other ports on the switch are ignored. This operand is optional.

Example

To display the port log dump for a port with area number of 5:

```
switch:admin> portlogdumpport 5
time          task       event  port cmd  args
----------------------------------------------
16:43:35.963  PORT       Rx        5   40  02fffffd,00fffffd,0a3bffff,14000000
16:43:35.963  PORT       Tx        5    0  c0fffffd,00fffffd,0a3b0536
16:43:35.967  PORT       Tx        5   40  02fffffd,00fffffd,0537ffff,14000000
16:43:35.970  PORT       Rx        5    0  c0fffffd,00fffffd,05370a3c
16:43:55.974  PORT       Rx        5   40  02fffffd,00fffffd,0a3fffff,14000000
16:43:55.974  PORT       Tx        5    0  c0fffffd,00fffffd,0a3f053a
16:43:55.978  PORT       Tx        5   40  02fffffd,00fffffd,053bffff,14000000
16:43:55.980  PORT       Rx        5    0  c0fffffd,00fffffd,053b0a40
16:43:57.772  PORT       Tx        5   20  02fffc08,00fffc04,053cffff,01000000
16:43:57.776  PORT       Rx        5    0  c0fffc04,00fffc08,053c002a
16:43:57.781  PORT       Rx        5  132  03fffc04,00fffc08,053c002a,01000000
switch:admin>
```

See Also

portLogClear
portLogShow
uptime

portloginshow

Displays port logins.

Synopsis: V3.1.x

```
portloginshow portnumber
```

Synopsis: V4.1.x

```
portloginshow [slotnumber/]portnumber
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display port login information. Some information varies with the switch model and port type. The lines of the display show:

Type	Type of login: fe - FLOGI, Fabric Login to Fabric F_Port. ff - PLOGI, Process Login to specific N- Ports or well-known address like Name Server. fd - FDISC, Virtual N_Port login.
PID	The port 24-bit D_ID.
WWN	The port Worldwide Name.
credit	The credit for this login as appropriate, this is BB (Buffer to Buffer) Credit for FLOGIs and EE (End to End) Credit for PLOGIs.
df_sz	The default frame size for this login.
cos	Class of Services supported. This can be a combination of the following bit: 8 - Class of Service includes class 2. 10 - Class of Service includes class 3.

There is further information about the login after the above columns. This can include the DID (Destination Identifier) that the port is logged on to.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

Example

The following example shows an N_Port with one FLOGI and two PLOGIs:

```
switch:admin> portloginshow 2
Type  PID     World Wide Name        credit df_sz cos
=====================================================
fe  201700  21:00:00:e0:8b:05:a3:c9     3  2048   8  scr=1
ff  201700  21:00:00:e0:8b:05:a3:c9     0     0   8  d_id=FFFC20
ff  201700  21:00:00:e0:8b:05:a3:c9     0     0   8  d_id=FFFFFC
```

See Also

portshow

fcpprobeshow

portlogpdisc

Set or clear the debug_pdisc_flag.

Synopsis

```
portlogpdisc lvl
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set or clear the debug_pdisc_flag.

Operands

This command has the following operand:

lvl	Specify either 0 to clear the flag or 1 to set the pdisc_flag.

Example

The following example shows how to set the pdisc_flag:

```
switch:admin> portlogpdisc 1
PDISC log setting = 1
```

See Also

None.

portLogShow

Displays the port log.

Synopsis

`portLogShow` *`[count, saved, portid]`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the port log. This command displays 22 entries at a time.

The `portLogShow` command displays the same information as `portLogDump`, but it allows you to enter a "return" after each page of output.

Port logs are circular log files in the switch firmware, which can save up to 1024 entries per logical switch in V3.1.x and up to 8000 entries per logical switch in V4.1.x. Once the log is full, the newest log entries delete the oldest log entries. Port logs capture switch-to-device, device-to-switch, switch-to-switch, some device-to-device1 and control information.

If the port log is disabled, the following message appears as the first line. See `portLogClear` command for more information.

```
WARNING: port log is disabled
```

The following fields are shown:

Time	Displays the event date and time in milliseconds.
Task	Displays the name of the internal switch procedure that logged the event.
Event	Displays the task event that generated log entry.
Port #	Displays the Port number that logged the event.

Cmd	Defined by the event. Refer to the *HP StorageWorks Fabric Operating System Procedures Version 3.1.x/4.1.x User Guide* for more information.
Args	Displays more information about the event. For ioctl events, these are the I/O control arguments For Tx and Rx, these are the first two header words and word four of the FC-PH frame along with the first word of the payload and internal decoding field.

For a full explanation of the information displayed by this command refer to the *HP StorageWorks Fabric Operating System Procedures Version 3.1.x/4.1.x User Guide*.

Operands

This command has the following operands:

count	Specify the maximum number of lines to display. Only the most recent count entries are displayed. This operand is optional.
saved	Specify a non-zero value to display the saved port log from the last switch fault. See `uptime` for a list of conditions that cause a fault. The `count` is ignored when displaying the saved log. This operand is optional.
portid	For V3.1.x, specify a non-zero value that specifies which port will be displayed. For V4.1.x, specify the area number of port to be displayed. If a port area number is specified, all other ports on the switch are ignored. This operand is optional.

Example

To display the port log:

```
switch:admin> portlogshow 10
Oct 16        task       event port  cmd  args
-------------------------------------------
WED OCT 16 12:35:24 2002
12:35:24.199  tReceive   debug    5       efd00020,00000102,00000000,00000000
12:35:24.199  tReceive   debug    5       dede0001,00000f37,00000000,00000000
12:35:24.199  tReceive   pstate   5  LR3
12:35:24.199  tReceive   debug    5       00acedd6,00000000,00000006,00009601
12:35:24.199  tReceive   debug    5       00acedd5,00000000,00000000,00009601
12:35:24.199  tReceive   pstate   5   AC
12:35:24.199  tReceive   debug    5       aceeee05,00000003,00000000,300082d7
12:35:25.166  tFcph      debug    5       aceace55,00008601,00000000,00000000
THU OCT 17 11:26:44 2002
11:26:44.749  tShell     errlog       4   SEC-SECVIOL_
MON OCT 21 13:27:45 2002
13:27:45.549  tShell     ioctl    0  129  1,0
switch:admin>
```

See Also

portLogClear

portLogDump

uptime

portlogshowport

Displays the port log of specified port, with page breaks.

Synopsis: V3.1.x

```
portlogshowport [portid [, count [, saved]]]
```

Synopsis: V4.1.x

```
portlogshowport [portid]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the port log, showing 22 entries at a time. It is identical to `portlogdump`, except that `portlogdump` does not prompts the user to type return between each page of output.

If the port log is disabled, the following message is printed as the first line (see `portlogclear` for details):

```
WARNING: port log is disabled
```

Refer to the `portlogdump` command for more information on the data returned by this command.

Operands

This command has the following operands:

count (V3.1.x only)	Specify the maximum number of lines to display. Only the most recent `count` entries are displayed. This operand is optional.
saved (V3.1.x only)	Specify a non-zero value to display the saved port log from the last switch fault. See `uptime` for a list of conditions that cause a fault. The `count` is ignored when displaying the saved log. This operand is optional.

portid Specify a non-zero value that specifies which port will be displayed.

Example

The following example shows a section of the port log with an E_Port coming online. The ELP and EFP exchanges are shown; a name service request was processed.

```
switch:admin> portlogshowport 24
Feb  6        task        event port  cmd  args
-----------------------------------------------------
08:35:27.899  tShell      pstate  14  OL1
08:35:27.899  tReceive    pstate  14  LR2
08:35:27.916  tReceive    pstate  14   AC
08:35:28.416  interrupt   scn     14    1
08:35:28.433  tFabric     ioctl   14   90  101d9910,0
08:35:28.433  tFabric     Tx      14  164  02fffffd,00fffffd,0005ffff,10000000
08:35:28.433  tReceive    Rx      14    0  c0fffffd,00fffffd,00050006
08:35:28.433  tReceive    Rx      14  164  03fffffd,00fffffd,00050006,02000000
<output truncated>
```

See Also

portlogclear

portlogdump

portlogshow

uptime

portLoopbackTest

Functional test of port N->N path.

Synopsis: V3.1.x

```
portLoopbackTest [passCount]
```

Synopsis: V4.1.x

```
portLoopbackTest [--slot number][-nframes count]
[-lb_mode mode][-spd_mode mode][-ports itemlist]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to verify the functional operation of the switch by sending frames from the port N transmitter, and looping the frames back into the same port N receiver. The loopback is done at the parallel loopback path. The path exercised in this test does not include the media, SFP, nor the fiber cable.

Only one frame is transmitted and received at any one time. No external cable is required to run this test. The port LEDs flicker green rapidly while the test is running.

Below is the test method:

1. Set all ports for parallel loopback.
2. Create a frame F of maximum data size (2112 bytes).
3. Transmit frame F through port N.
4. Pick up the frame from the same port N.
5. Check the 8 statistic error counters for nonzero values:

   ```
   ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out,
   BadOrdSet, DiscC3
   ```

6. Check if the transmit, receive or class 3 receiver counters are stuck at some value.
7. Check if the number of frames transmitted is not equal to the number of frames received.
8. Repeat steps 2 through 7 for all ports present until:
   - The number of frames (or `passCount`) requested is reached.
   - All ports are marked bad.

At each pass, the frame is created from a different data type. If seven passes are requested, seven different data types are used in the test. If eight passes are requested, the first seven frames use unique data types, and the eighth is the same as the first. The seven data types are:

```
1)   CSPAT:       0x7e, 0x7e, 0x7e, 0x7e,...
2)   BYTE_LFSR:   0x69, 0x01, 0x02, 0x05,...
3)   CHALF_SQ:    0x4a, 0x4a, 0x4a, 0x4a,...
4)   QUAD_NOT:    0x00, 0xff, 0x00, 0xff,...
5)   CQTR_SQ:     0x78, 0x78, 0x78, 0x78,...
6)   CRPAT:       0xbc, 0xbc, 0x23, 0x47,...
7)   RANDOM:      0x25, 0x7f, 0x6e, 0x9a,...
```

Because this test does not include the media, SFP, or the fiber cable in its test path, use the results from this test in conjunction with the results from `crossPortTest` and `spinSilk` (both of which loop frames using an external loopback cable) test to determine those switch components that are not functioning properly.

Operands

This command has the following operands:

passCount (V3.1.x only)	Specify the number of times (or number of frames per port) to execute this test. The default value is 0xfffffffe. This operand is optional.
--slot number (V4.1.x only)	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed port count products.
-nframes count (V4.1.x only)	Specify the number of frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10.

-lb_mode mode
(V4.1.x only)

Specify the loopback mode for the test. By default, this test uses internal loopback. Valid values are as follows:

1 Port Loopback (loopback plugs)

2 External (SERDES) loopback

5 Internal (parallel) loopback

-spd_mode mode
(V4.1.x only)

Specify the speed mode for the test. For 1 Gbit/sec only products it is ignored. The exact operation of modes 3 through 6 depends upon the loopback mode selected. When speed modes 3 through 6 are used with cables, they must be connected EVEN to ODD or the test will fail.

- 0: set all ports' speed for auto-negotiate.
- 1: set all ports' speed to lock at 1 Gbit/sec.
- 2: set all port's speed to lock at 2 Gbit/sec.

For *lb_mode* == 0,1 the following speed modes are available to test the speed negotiation:

- 3: set all even ports' speed for auto-negotiate, set all odd ports' speed for 1 Gbit/sec.
- 4: set all even ports' speed for auto-negotiate, set all odd ports' speed for 2 Gbit/sec.
- 5: set all odd ports' speed for auto-negotiate, set all even ports' speed for 1 Gbit/sec.
- 6: set all odd ports' speed for auto-negotiate, set all even ports' speed for 2 Gbit/sec.

For lb_mode== 2,3 the following speed modes are available to test fifo underrun.

- 3,5: set all even ports' speed for 2 Gbit/sec, set all odd ports' speed for 1 Gbit/sec.
- 4,6: set all even ports' speed for 1 Gbit/sec, set all odd ports' speed for 2 Gbit/sec.

-ports itemlist
(V4.1.x only)

Specify a list of user ports to test. By default all of the user ports in the current switch are tested. This option may be used to restrict testing to the specified ports.

Example

To run the `portLoopbackTest` 100 times (V3.1.x example):

```
switch:admin> portLoopbackTest 100
Running Port Loopback Test .... passed.
```

To run the `portLoopbackTest` (V4.1.x example):

```
switch:admin> portloopbacktest -ports 1/38-1/45 -nframes 1 -lb_mode 1
Running Port Loopback Test ....
passed.
```

Errors

Below are possible error messages if failures are detected:

- For V3.1.x:

  ```
  DIAG-INIT
  DIAG-PORTDIED
  DIAG-XMIT
  DIAG-TIMEOUT
  DIAG-ERRSTAT
  DIAG-STATS
  DIAG-DATA
  ```

- For V4.1.x:

  ```
  DATA
  ERRSTAT
  INIT
  PORTDIED
  STATS
  TIMEOUT
  XMIT
  ```

See Also

camtest
centralmemorytest
cmemretentiontest
cmitest
crossporttest
filtertest
portloopbacktest
portregtest
ramtest
spinsilk
sramretentiontest

portname

Assign or display a port name.

Synopsis: V3.1.x

`portname` *`port_number, "port_name"`*

Synopsis: V4.1.x

`portname` *`[slotnumber/]portnumber, "portname"`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to assign or display a port name. Both operands are optional for this command.

With both the operands present, the port name string will be assigned to the port. With only the port name operand, the previously assigned port name will be displayed. With no operands, the port names of all the ports present will be displayed.

The port name is a string of length 32 characters or less. It may consist of white spaces or printable characters, excluding the characters comma and semi-colon. By default, a port has no name until it is explicitly assigned by the user.

A null string (that is no port name operand specified) is used as the default port name when a port had no user assigned name. A port name can be reset to the default value by executing the `portname` command with the second operand as a null string.

Like all other configurable port attributes, port name will be persistent across reboots and power cycles. It will not be affected by `configdefault` command but it will be cleared by `portcfgdefault`.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
port_number (V3.1.x only)	Specify the port number to name. This operand is required.
portnumber (V4.1.x only)	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.
port_name (V3.1.x only) *portname* (V4.1.x only)	Specify a port name. The port name is a character string from 1 to 32 characters. This operand must be enclosed in quotation marks. This operand is required.

Example

To assign a name to a port:

```
switch:admin> portname 1/3, "Tape drive 5"
Committing configuration...done.
Tape drive 5
switch:admin> portname 1/3
Tape drive 5
```

See Also

configdefault

portcfgdefault

portshow

portPerfShow

Displays port throughput performance in bytes, kilobytes, or megabytes.

Synopsis

`portPerfShow` *`[interval]`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display throughput information for all ports on the switch (8 or 16 columns depending on the switch model). One output line is displayed per interval (or second if no interval is specified) until **Enter**, **Ctrl-C**, or **Ctrl-D** is entered.

Shown are the number of bytes received plus the number of bytes transmitted per interval. Throughput numbers are shown as either bytes, kilobytes (k), or megabytes (m).

Operands

This command has the following operand:

`interval`	Specify the interval, in seconds, between each sample. This operand is optional.

Example

To display port throughput for a 16 port switch:

```
switch:admin> portperfshow
0    1    2    3    4    5    6    7    8    9    10   11   12   13   14   15
-------------------------------------------------------------------------------
0    0    0    0    0    0    0   76m   0    0    0    0    0    0    0   76m
96   0   96    0    0   96    0   76m   0    0    0    0    0    0    0   76m
0    0    0    0    0    0    0   76m   0    0    0    0    0    0    0   76m
```

To display port throughput for a StorageWorks Core switch:

```
switch:admin> portPerfShow
           0    1    2    3    4    5    6    7    8    9    10
==========================================================
slot 1:  0    0    0    0    0    0    0    0    0    0    0
slot 2:  0    0    0    0    0    0    0    0    0    0    0
```

See Also

portStatsShow

portRegTest

Bit write/read test of the ASIC SRAMs and registers.

Synopsis: V3.1.x

```
portRegTest
```

Synopsis: V4.1.x

```
portRegTest [--slot number][-ports itemlist]
[-skiptests mask][-verbose mode]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to verify that SRAM and register data bits in each ASIC can be independently written and read.

The method used is to write a walking pattern to each location. The command writes 0x00000001 to register N, then reads the data, and compares it to make sure that the same pattern previously written is read back. Then the command shifts the pattern leftward by 1 bit (to 0x00000002), repeats the write, read and compare cycle. This continues until the last writable bit in register N is reached (0x80000000 for a 32-bit register).

For example, a 6-bit register is effectively tested with the following pattern for V3.1.x:

1. 0x0001
2. 0x0002
3. 0x0004
4. 0x0008
5. 0x0010

6. 0x0020
7. 0x0040
8. 0x0080
9. 0x0100
10. 0x0200
11. 0x0400
12. 0x0800
13. 0x1000
14. 0x2000
15. 0x4000
16. 0x8000

The 6-bit register is tested with the following pattern for V4.1.x:

```
0x0001    0x0002    0x0004    0x0008
0x0010    0x0020    0x0040    0x0080
0x0100    0x0200    0x0400    0x0800
0x1000    0x2000    0x4000    0x8000
```

Repeat the above steps until all ASIC SRAMs and registers have been tested.

Operands

For V3.1.x, none.

For V4.1.x, this command has the following operands:

--slot number	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is 0.
-ports itemlist	Specify a list of blade ports to test. By default all the blade ports in the specified slot will be used. See `itemlist` help pages for further details.

-skiptests mask	A bit mask that defines which of the register test subtests to skip. By default, all subtests will be performed. Valid mask values include one or more of the following: **Value Description** 0x2 Skip retry register test. 0x4 Skip statistics register test. 0x8 Skip walk-1 test. 0x10 Skip credit counter test.
-verbose mode	Specify a non-zero value to enable verbose mode. The default value is to disable this mode.

Example

To run bit write/read test of the ASIC SRAMs and registers (V3.1.x example):

```
switch:admin> portRegTest
Running Port Register Test .... passed.
```

To run bit write/read test of the ASIC SRAMs and registers (V4.1.x example):

```
switch:admin> portregtest -ports 1/0-1/15
Running Port Register Test ....
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 0 min & 33 sec (0:0:33:447).
passed.
```

Errors

When this command detects failures, the test may report one or more of the following error messages:

- For V3.1.x:

  ```
  DIAG-REGERR
  DIAG-REGERR_UNRST
  DIAG-BUS_TIMEOUT
  ```

- For V4.1.x:

  ```
  BUS_TIMEOUT
  REGERR
  REGERR_UNRST
  ```

See Also

camtest
centralmemorytest
cmemretentiontest
cmitest
crossporttest
filtertest
itemlist
portloopbacktest
spinsilk
sramretentiontest
statstest

portRouteShow

Displays routing tables for a port.

Synopsis: V3.1.x

`portRouteShow` *`portnumber`*

Synopsis: V4.1.x

`portRouteShow` *`[slotnumber/]portnumber`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the port address ID and the contents of the following port routing tables:

External unicast routing table	Shows unicast frame routing to another switch element in the fabric. Output format is
	`domain_number: ports_bitmap`
	where:
	`domain_number` is the switch element number that a unicast frame can reach from the `portnumber` port.
	`ports_bitmap` contains all output ports, in bitmap hex format, that can forward unicast frames from port number to domain number.
	This table contains at least one entry for each active port:
	`local_switch_domain_number: 0x10000`
	This is for routing unicast frames designated to the embedded port of the local switch element.

Internal unicast routing table	Lists all ports in the local switch that a unicast frame can reach from portnumber. Format is `destination_port: output_ports_bitmap` Because the `destination_port` is in the local switch, `output_ports_bitmap` usually contains one bit with a bit position number representing the `destination_port` number.

Multicast routing table	Shows multicast frame routing to the destination multicast group. Output format is:
	`mcast_group_number: (mcast_group_id) ports_bitmap`
	where
	`mcast_group_number` is the multicast group number
	`mcast_group_id` is the multicast frame destination ID
	`ports_bitmap` is a hex bitmap of all output port numbers that can forward a multicast frame from the portnumber to `mcast_group_id`

Broadcast routing table	A bitmap, containing all ports reachable by a received broadcast frame. Bit 16 of the bitmap is always set to allow the switch element to receive broadcast frames.

Operands

This command has the following operand:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the port routing tables for blade 4 port 15:

```
switch:admin> portRouteShow 4/15
port address ID: 0x02bf00
external unicast routing table:
1: 0x4 (vc=3)
2: 0x10000 (vc=0)
internal unicast routing table:
60: 0x8000 (vc=2)
63: 0x1000 (vc=5)
multicast routing table:
0-255: (all mcast aliases) 0x40
broadcast routing table:
0x19040
san116:user>
```

See Also

bcastShow

fabricShow

mcastShow

switchShow

topologyShow

uRouteShow

portShow

Displays port status.

Synopsis: V3.1.x

```
portShow portnumber
```

Synopsis: V4.1.x

```
portShow [slotnumber/]portnumber
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display status information for a port. Information varies with the switch model and port type. The display shows:

Table 15: PortShow Display Fields

Field	Description
portCFlags	Port control flags.
portFlags	Bit map of port status flags.
portType	Port type and revision numbers.
portState	Port SNMP state: Online - Up and running Offline - Not online, portPhys gives details Testing - Running diagnostics Faulty - Failed diagnostics

Table 15: PortShow Display Fields (Continued)

Field	Description
portPhys	Port physical state: No_Card - No interface card present No_Module - No module (SFP or other) present No_Light - Module not receiving light No_Sync - Receiving light but out of sync In_Sync - Receiving light and in sync Laser_Flt - Module is signaling a laser fault Port_Flt - Port marked faulty Diag_Flt - Port failed diagnostics Lock_Ref - Locking to the reference signal
portScn	Last state change notification for port.
portId	24-bit D_ID for port.
portWwn	Port WWNs of devices connected.
Distance	The port's long distance level.
Speed	The port's fixed speed level or negotiated speed level: 1 Gbps - Fixed speed of 1 Gb per second. N1 Gbps - Negotiated speed of 1 Gb per second. 2 Gbps - Fixed speed of 2 Gb per second. N2 Gbps - Negotiated speed of 2 Gb per second. Negotiating - The speed of the port is being determined.
Interrupts	Total number of interrupts.
Unknown	Interrupts that are not counted elsewhere.
Lli	Low-level interface (physical state, primitive seqs).
Proc_rqrd	Frames delivered for embedded N_Port processing.
Timed_out	Frames that have timed out.
Rx_flushed	Frames requiring translation.
Tx_unavail	Frames returned from an unavailable transmitter.
Free_buffer	Free buffer available interrupts.
Overrun	Buffer overrun interrupts.
Suspended	Transmission suspended interrupts.

Table 15: PortShow Display Fields (Continued)

Field	Description
Parity_err	Real Tx data parity error.
2ndary_parity_err	Secondary Tx data parity error. These are not real Tx data parity errors but rather forced by the ASIC due to certain central memory errors so that the transmitter will abort the frame. This field will only be displayed when there are errors.
CMI_bus_err	Control message interface errors.

The second column shows Link Error Status Block counters.

The third column shows the number of F_RJTs and F_BSYs generated. For L_Ports, the third column also shows the number of LIPs received, number of LIPs transmitted, and the last LIP received.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the status for a specified E_Port:

```
switch:admin> portshow 15
portName:
portFlags: 0x300082d7 portLbMod: 0x10 PRESENT ACTIVE E_PORT G_PORT U_PORT SEG
MENTED CBL_LB LOGIN
portType:  4.1
portState: 1    Online
portPhys:  6    In_Sync
portScn:   7    Segmented Flow control mode 0
portRegs:  0x81050000
portData:  0x11efc2d0
portId:    021500
portWwn:   20:05:00:60:69:c0:06:71
portWwn of device(s) connected:         20:05:00:60:69:c0:06:71
Distance:  normal
Speed:     2Gbps

Interrupts:        227       Link_failure: 0          Frjt:         0
Unknown:           28        Loss_of_sync: 7          Fbsy:         0
Lli:               63        Loss_of_sig:  0
Proc_rqrd:         150       Protocol_err: 0
Timed_out:         0         Invalid_word: 0
Rx_flushed:        0         Invalid_crc:  0
Tx_unavail:        0         Delim_err:    0
Free_buffer:       0         Address_err:  0
Overrun:           0         Lr_in:        14
Suspended:         0         Lr_out:       14
Parity_err:        0         Ols_in:       7
Ols_out:      7
switch:admin>
```

See Also

switchShow

portstatsclear

Clear the hardware statistics of a specified switch port.

Synopsis: V3.1.x

```
portstatsclear portnumber
```

Synopsis: V4.1.x

```
portstatsclear [slotnumber/]portnumber
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command clears the hardware statistics for a specified switch port. At the same time, this command also clears the hardware statistics for the associated ports in the target port quad.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To clear the hardware statistics for slot 8 port 5:

```
switch:admin> portstatsclear 8/5
switch:admin>
```

See Also

portstatshow

portStatsShow

Displays port hardware statistics.

Synopsis: V3.1.x

`portStatsShow` *`portnumber`*

Synopsis: V4.1.x

`portStatsShow` *`[slotnumber/]portnumber`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display port hardware statistics counters.

`stat_wtx`	4-byte words transmitted.
`stat_wrx`	4-byte words received.
`stat_ftx`	Frames transmitted.
`stat_frx`	Frames received.
`stat_c2_frx`	Class 2 frames received.
`stat_c3_frx`	Class 3 frames received.
`stat_lc_rx`	Link control frames received.
`stat_mc_rx`	Multicast frames received.
`stat_mc_to`	Multicast timeouts.
`stat_mc_tx`	Multicast frames transmitted.
`tim_rdy_pri`	Time R_RDY high priority.
`tim_txcrd_z`	Time BB_credit zero.
`er_enc_in`	Encoding errors inside frames.

er_crc	Frames with CRC errors.
er_trunc	Frames shorter than minimum.
er_toolong	Frames longer than maximum.
er_bad_eof	Frames with bad end-of-frame.
er_enc_out	Encoding error outside frames.
er_disc_c3	Class 3 frames discarded.
fl_open	Number of OPNyx sent.
fl_opened	Number of OPNyx received.
fl_openfr	Number of OPNfr sent.
fl_cls_idle	CLS sent due to loop idle.
fl_cls_rx	CLS received when OPEN.
fl_bb_stall	OPN/CLS BB_Credit stalls.
fl_cf_alloc	Number of CFIFOs allocated.
fl_cf_opn	CFIFOs delivered when OPENED.
fl_cf_full	Number of CFIFOs full stalls.
fl_cf_na	CFIFO not available stalls.
fl_trig_age	Number of age count triggers.
fl_trig_lp	Number of loop not busy triggers.
open	Number of times the FL_Port entered OPEN state.
transfer	Number of times the FL_Port entered TRANSFER state.
opened	Number of times the FL_Port entered OPENED state.
starve_stop	Loop tenancies stopped due to starvation.
fl_tenancy	Number of times FL_Port had loop tenancy.
nl_tenancy	Number of times NL_Port had loop tenancy.
frame_nozone	Frames rejected due to zone protection.

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
`portnumber`	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the basic set of statistics for blade 2 port 3:

```
switch:admin> portstatsshow 2/5
stat_wtx        24081       4-byte words transmitted
stat_wrx        24081       4-byte words received
stat_ftx        141         Frames transmitted
stat_frx        141         Frames received
stat_c2_frx     0           Class 2 frames received
stat_c3_frx     117         Class 3 frames received
stat_lc_rx      12          Link control frames received
stat_mc_rx      0           Multicast frames received
stat_mc_to      0           Multicast timeouts
stat_mc_tx      0           Multicast frames transmitted
tim_rdy_pri     0           Time R_RDY high priority
tim_txcrd_z     0           Time BB_credit zero
er_enc_in       0           Encoding errors inside of frames
er_crc          0           Frames with CRC errors
er_trunc        0           Frames shorter than minimum
er_toolong      0           Frames longer than maximum
er_bad_eof      0           Frames with bad end-of-frame
er_enc_out      612         Encoding error outside of frames
er_disc_c3      0           Class 3 frames discarded
open            0           loop_open
transfer        0           loop_transfer
opened          0           FL_Port opened
starve_stop     0           tenancies stopped due to starvation
fl_tenancy      0           number of times FL has the tenancy
nl_tenancy      0           number of times NL has the tenancy
frame_nozone    0           frames rejected due to zone protection
switch:admin>
```

See Also

portErrShow

portShow

portswap

Swap area numbers of two switch ports.

Synopsis

`portswap` *`[slotnumber/]port1 [slotnumber/]port2`*

Availability

Admin

Release

V4.1.x

Description

Use this command to swap area numbers for a pair of switch ports. Both switch ports must be disabled prior to executing this command. The `portswap` command cannot be used unless the feature is first enabled with the `portswapenable` command.

Operands

This command has the following operands:

`slotnumber`	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
`port1`	Specify the port number where you want to swap the area ID number.
`port2`	Specify the port number where you want to swap the port1 area ID number.

Example

The following command swaps area numbers between port 2 on slot1 with port5 on slot2:

```
switch:admin> portswap 1/2 2/5
```

See Also

switchshow

portshow

portenable

portdisable

portswapshow

portswapdisable

Disable the portswap feature.

Synopsis

```
portswapdisable
```

Availability

Admin

Release

V4.1.x

Description

Use this command to disable the portswap feature. The `portswap` command cannot be used once this feature is disabled.

Operands

None.

Example

The following command disables the portswap feature:

```
switch:admin> portswapdisable
done.
```

See Also

portenable

portdisable

portshow

portswapenable

portswapshow

switchshow

portswapenable

Enable the portswap feature.

Synopsis

```
portswapenable
```

Availability

Admin

Release

V4.1.x

Description

Use this command to enable the portswap feature. The `portswap` command cannot be used unless the feature is first enabled with this command.

Operands

None.

Example

The following command enables the portswap feature:

```
switch:admin> portswapenable
done.
switch:admin>
```

See Also

portenable
portdisable
portshow
portswapenable
portswapshow
switchshow

portswapshow

Displays information for any ports where area ID numbers have been swapped.

Synopsis

```
portswapshow
```

Availability

Admin

Release

V4.1.x

Description

Use this command to displays port and area information for those ports whose area number is different from the default area number. The default area number of a port is same as its switch port number.

Operands

None.

Example

To display information for port area IDs that have been swapped:

```
switch:admin> portswapshow
PortSwap is enabled
No ports have been swapped
switch:admin>
```

See Also

errshow
portenable
portdisable
portshow
portswap
portswapdisable
portswapenable
switchshow

porttest

Functional test of a switch in a live fabric.

Synopsis: V3.1.x

```
porttest [ports, iteration, delay, timeout, pattern,
patsize, seed]
```

Synopsis: V4.1.x

```
porttest [-ports itemlist][-iteration count]
[-userdelay time][-timeout time][-pattern pattern]
[-patsize size][-seed seed][-listtype porttype]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to isolate problems to a single replaceable element and isolate problems to near-end terminal equipment, far-end terminal equipment, or transmission line. Diagnostics can be executed every day, and also on demand to troubleshoot a failure.

This command verifies the intended functional operation of the switch by sending frames from port M's transmitter, and looping the frames back via an external fiber cable into port M's receiver; thus exercising all the switch components from the main board to the GBIC to the fiber cable to the SFPs (of the devices and the switch) and back to the main board.

The cables and SFPs connected should be of the same technology: meaning a short wavelength SFP (switch) port is connected to another short wavelength SFP (device) port using a short wavelength cable; and a long wavelength port is connected to a long wavelength port; and a copper port is connected to a copper port.

Only one frame is transmitted and received at any one time. The port LEDs flicker green while the test is running.

The following port types are supported:

- E_ports
- F_ports. (Must support ELS ECHO)
- L_ports
- N->N Loopback ports

This command will not run on any other port type.

The command performs the following actions:

1. Initiate tests on certain ports (`porttest` command)
2. Stop active tests on certain ports (`stopporttest` command)
3. Get the snapshot of the test result. (`porttestshow` command)

Once `porttest` is triggered, you can use `stopporttest` to stop the test. See the `stopporttest` command for more information.

Once `porttest` is triggered, you can use `stopporttest` to stop the test. Current progress of `porttest` can be viewed by running `porttestshow`. See the `porttestshow` command for more information.

If the port type changes during `porttest` execution, the test will continue on a given port as long as it is supported. If a request is made to test all possible ports on a given switch, the command will start a new test using the new port type to start the appropriate test.

Operands

This command has the following operands:

ports (V3.1.x only)	Specify the port to run the test on. If omitted, the test will be executed on all possible ports. Default value is All ports enable. Valid values are: -1 All ports. -2 All E_ports. -3 All L_ports. -4 All F_ports. -5 All N->N Loopback ports. This operand is optional.

iteration (V3.1.x only)	Specify the number of times (or number of frames per port) to execute this test. Default value is -1 that is set the test to run until stopped. Valid values are: 0 Run the test on timeout mode. -1 Run the test until stopped. This operand is optional.
delay (V3.1.x only)	Specify the time delay in minutes between frames being sent. The default value is 20 minutes. This operand is optional.
timeout (V3.1.x only)	Specify the maximum number of seconds to allow for the test to run. Setting the `iteration` to 0 will set this command into timeout mode. The default value is 0. This operand is optional.
pattern (V3.1.x only)	Specify the pattern of the test packets payload. The default pattern type is random. Nineteen types of predefined patterns are provided with the test. Refer to the `datatypeshow` command to view the types of patterns that are supported with `porttest`. This operand is optional.
patsize (V3.1.x only)	Specify the size of the pattern. The default value is 2112. This operand is optional.
seed (V3.1.x only)	Specify the seed value to be used with the pattern. The default seed value is 0xaa. This operand is optional.
-ports itemlist (V4.1.x only)	Specify a list of user ports to test. By default all the user ports in the current slot will be assumed. See `itemlist` help pages for further details.
-iteration count (V4.1.x only)	Specify the number of times (or number of frames per port) to execute this test. Default value is 20. Valid values are: 0 Run the test on timeout mode. -1 Run forever.
-userdelay time (V4.1.x only)	Specify the delay between frames sent by `porttest` in minutes. The default value is 10 minutes.
-timeout time (V4.1.x only)	Specify the number of seconds to run the test. Setting the iteration to 0 will set the `porttest` into timeout mode. The default value is 0.
-pattern (V4.1.x only)	Specify the pattern of the test packets payload. Default pattern type is random. Twenty types of predefined patterns are provided with the test. Use the *datatypeshow* command to see the types of pattern that are supported with `portTest`.

-patsize size (V4.1.x only)	Specify the size of the pattern. Default size of the pattern is 1024 bytes. Valid rang of values are 4 bytes through 2112 bytes.
-seed seed (V4.1.x only)	Specify the seed pattern to be used with pattern. Default seed value is 0xaa.
-listtype porttype (V4.1.x only)	Specify the type of ports to run `porttest`. The default value is -1. Valid values are: -1 All ports. -2 All E_ports. -3 All L_ports. -4 All F_ports. -5 All Loopback ports.

Example

To run a functional test on an active switch (V3.1.x example):

```
switch:admin> porttest -1,1000
```

To run a functional test on an active switch (V4.1.x example):

```
switch:admin> porttest -ports 1/1-1/3
```

See Also

crossporttest

fporttest

loopporttest

portloopbacktest

porttestshow

spinfab

stopporttest

porttestshow

Retrieve information from the current execution of the `porttest` command.

Synopsis: V3.1.x

`porttestshow` *`[ports]`*

Synopsis: V4.1.x

`porttestshow` *`[-ports itemlist]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to retrieve a snapshot of information from `porttest` command.

Following information is displayed:

- Pass/Fail information on a given port.
- Port type tested.
- Current State of portTest:
  - NO TEST
  - TESTING
  - TEST DONE
- Type of ports asked to test:
  - ALL_PORTS
  - ALL_E_PORTS
  - ALL_L_PORTS
  - ALL_F_PORTS

  - — ALL_LB_PORTS
  - — SINGLE_PORT
- `pattern` used in testing.
- `seed` used in testing.
- User Delay value.
- Total iteration value.
- Current test iteration.
- Total Fails on this test.
- Consecutive Fails on this test.
- `porttest` Start Time.
- `porttest` Stop Time.
- Timeout value.
- Error code if any.

Operands

This command has the following operands:

ports (V3.1.x only)	Specify the port to stop the test on. If omitted, the test will be executed on all possible ports. Default value is -1 stop the test on all ports.This operand is optional.
-ports itemlist (V4.1.x only)	Specify a list of user ports to test. By default all the user ports in the current slot will be assumed. See `itemlist` help pages for further details.

Example

To view information on the current execution of the `porttest` command:

```
switch:admin> porttestshow 6
Port 6 : PASS
PortType: LOOPBACK PORT            PortState: TESTING
PortState: TX                      PortTypeToTest: ALL_PORTS
Pattern: 0x1            Seed: 0xaa           UserDelay: 10

TotalIteration: 100                CurrentIteration: 22
TotalFail: 0                       ConsecutiveFail: 0
StartTime: Jul  1 09:03:49         StopTime: NONE
Timeout: 0                         ErrorCode: 0
switch:admin>
```

See Also

crossporttest

fporttest

loopporttest

portloopbacktest

porttest

spinfab

stopporttest

powerofflistset

Sets slot power off list order.

Synopsis

```
powerofflistset
```

Availability

Admin

Release

V4.1.x

Description

Use this command to set the physical power off slot order. The system available power is compared to the system demand power to determine if there is enough power to operate. If there is less power available than the demand, then the power off list is processed until there is enough power for the system to operate. The format of the display varies depending on the switch model and the number of slots present.

When this command is executed, the first item displayed is the current power off list order. Then you are prompted to make any changes, and finally, the new power off list order is displayed. The command then prompts to verify and commit the changes.

Operands

None.

Example

To modify the power off list order:

```
switch:admin> powerofflistset

Slot    Current POL
-------------------
 10         1st
  9         2nd
  8         3rd
  7         4th
  4         5th
  3         6th
  2         7th
  1         8th

1st slot to be power off: (1..10) [10] 7
2nd slot to be power off: (1..10) [9] 8
3rd slot to be power off: (1..10) [9]
4th slot to be power off: (1..10) [10]
5th slot to be power off: (1..4) [4] 1
6th slot to be power off: (2..4) [3] 2
7th slot to be power off: (3..4) [3]
8th slot to be power off: (4..4) [4]

Old POL    New POL    Power Off Order
-------------------------------------
 10          7            1st
  9          8            2nd
  8          9            3rd
  7         10            4th
  4          1            5th
  3          2            6th
  2          3            7th
  1          4            8th

Proceed to change the POL order? (yes, y, no, n): [no] y
switch:admin>
```

See Also

chassisshow

powerofflistshow

psshow

slotpoweroff

slotpoweron

slotshow

powerofflistshow

Displays slot power off list order.

Synopsis

```
powerofflistshow
```

Availability

All users.

Release

V4.1.x

Description

Use this command to displays the order in which the physical slots will be powered off. The system available power is compared to the system demand power to determine if there is enough power to operate. If there is less power available than the demand, then the power off list is processed until there is enough power for the system to operate. The format of the display varies depending on the switch model and the number of slots present.

Operands

None.

Example

To display the slot power off list order:

```
switch12k:admin> powerofflistshow
Slot 10 will be powered off 1st
Slot 9 will be powered off 2nd
Slot 8 will be powered off 3rd
Slot 7 will be powered off 4th
Slot 4 will be powered off 5th
Slot 3 will be powered off 6th
Slot 2 will be powered off 7th
Slot 1 will be powered off 8th
switch12k:admin>
```

See Also

chassisshow
powerofflistset
psshow
slotpoweroff
slotpoweron
slotshow

psShow

Displays power supply status.

Synopsis

```
psShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the current status of the switch power supplies.

The format of the display varies according to the switch model and number of power supplies present. Optionally, depending upon switch model, the OEM Serial ID Data is displayed after each power supply status line.

The StorageWorks Core switch cannot display power supply status:

```
Power Supply status not available on this switch model.
```

The status of each supply is shown as:

OK	Power supply functioning correctly.
absent	Power supply not present.
Unknown	Unknown power supply unit installed.
Predicting Failure	Power supply is present, but predicting failure.
faulty	Power supply present but faulty (no power cable, power switch turned off, fuse blown, or other internal error).

Operands

None.

Example

To view the status of the power supply for the current switch:

```
switch:admin> psShow
Power Supply #1 is OK
DELTA DPS-1001AB-1E 23000000601 S1   IXD0111000088
Power Supply #2 is faulty
DELTA DPS-1001AB-1E 23000000601 S1   IXD0111000162
Power Supply #3 is OK
DELTA DPS-1001AB-1E 23000000601 S1   IXD0111000120
Power Supply #4 is absent
```

See Also

fanShow

tempShow

ptdatashow

Displays port data structures.

Synopsis

```
ptdatashow [slotnumber/]portnumber
```

Availability

All users.

Release

V4.1.x

Description

Use this command to display port data structures.

Note: This command is not intended for normal user operation and is available to provide supplemental information during system debug.

Operands

This command has the following operands:

slotnumber	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the port data structure for slot 1 port 1:

```
switch:admin> ptdatashow 1/1

Port Data Structure for slot: 1, port: 1

Bloom Data Pointers: bloomp = 0xc6eb7200 (fbloomp = 0x00000000)
-------------------
blm_regs          0xc9b17000    blm_proc_dir      0xc50d9f20
fab_ptr           0xc04f0000    fab_Iop           0xc04f0050
qdblm             0xc5702c00    chblm             0xc661b5a0
pt                0xc5701760    blm_miniS_handle  0xc57012e0

Bloom Local Variables
---------------------
blm_type  = 0x00000012  G_PORT E_PORTto stop
blm_state = 0x00000001  ONLINE  p_phstate = IN_SYNC
blm_flags = 0x00000000  NORMAL
lab_mode  = 0x00        EFD
blm_port_type = Intra-blade     blm_rev           1
blm_initialized   0             my_domain         1
blm_quad_idx      1             blm_chip_idx      1
blm_miniS_idx     1             blm_blade_idx     1
--- <output truncated> ---
```

See Also

None.

ptphantomshow

Displays the quick-loop CAM tables.

Synopsis

`ptphantomshow [slotnumber/]portnumber`

Availability

All users..

Release

V4.1.x

Description

Use this command to display the quick-loop CAM (Content Addressable Memory) tables.

Note: This command is not intended for normal user operation and is available to provide supplemental information during system debug.

Operands

This command has the following operands:

slotnumber	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the port routing tables for slot 2 port 1:

```
switch:admin> ptphantomshow 2/1
Port Routing table for slot: 2, port: 1

The following alpas are private on some switch ports:
(alpa, UI port bitmap on the blade)

plt_cam table and plt_alpa table:
index      sid               plt_alpas      ......

plt_did table for this port:
ali  alpa  sid          ali  alpa  sid       ......
```

See Also

None.

ptpropshow

Displays port properties.

Synopsis

`ptpropshow` *[slotnumber/]portnumber | [slot] -all*

Availability

All users..

Release

V4.1.x

Description

Use this command to display the ASIC port properties contents for the specified port.

Note: This command is not intended for normal user operation and is available to provide supplemental information during system debug.

Operands

This command has the following operands:

slotnumber	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
[slot] -all	Specify which slot to operate on. The entire ports in the slot will be displayed. If *slot* is not specified, the current slot will be assumed. This operand is optional.

Example

To display the port properties for slot 1 port 2:

```
switch:admin> ptpropshow 1/2
Port Property for slot: 1, port: 2

P2: [be,3,2],SP,CAP:[1,1,1,(1,1,0)],WWN: 00:00:00:00:00:00:00:00
switch:admin>
```

See Also

chippropshow

ptregshow

ptregshow

Displays ASIC port registers.

Synopsis

`ptpropshow [slotnumber/]portnumber`

Availability

All users..

Release

V4.1.x

Description

Use this command to display the contents of port registers.

Note: This command is not intended for normal user operation and is available to provide supplemental information during system debug.

Operands

This command has the following operands:

slotnumber	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the port registers for slot 1 port 1:

```
switch:admin> ptregshow 1/1
Port Registers for slot: 1, port: 1

0xc9b17000: chip_id        0104         0xc9b17002: port_config    0a38
0xc9b17004: did_vc_map     0800         0xc9b17008: int_mask       064f
0xc9b1700a: int_status     1020         0xc9b1700c: err_status     0003
0xc9b1700e: vc_config      00c0         0xc9b17010: buf_error      00000000
0xc9b17014: mem_bufline    00080008     0xc9b17018: mem_ctl        1024
0xc9b1701a: mem_offset     0000         0xc9b1701c: port_ctl       0000
0xc9b1701e: quad_imask     c003         0xc9b17020: port_addr      00010000
0xc9b17024: lli_status     00040007     0xc9b17028: lli_ctl        00080180
0xc9b1702c: lli_def        00000000     0xc9b17030: lli_mask       00020000
0xc9b17034: prescaler0     000a         0xc9b17036: tod0           0104
0xc9b17038: toc0           0007         0xc9b1703a: toc1           0000
0xc9b1703c: toc_ctl        0000         0xc9b17044: putq_stat      ffffffff
--- <output truncated> ---
```

See Also

None.

ptrouteshow

Displays port routing properties.

Synopsis

```
ptrouteshow [slotnumber/]portnumber
```

Availability

All users..

Release

V4.1.x

Description

Use this command to display the ASIC routing table contents.

Note: This command is not intended for normal user operation and is available to provide supplemental information during system debug.

Operands

This command has the following operands:

slotnumber	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To display the port routing properties for slot 1 port 3:

```
switch:admin> ptrouteshow 1/3
Port Routing table for slot: 1, port: 3

port address ID: 0x130000
external unicast routing table:
internal unicast routing table:
multicast routing table:
broadcast routing table:
```

See Also

ptrouteshow

ptstatsshow

Displays port statistics properties.

Synopsis

`ptstatsshow [slotnumber/]portnumber`

Availability

All users..

Release

V4.1.x

Description

Use this command to display the port statistic properties for the specified port.

Note: This command is not intended for normal user operation and is available to provide supplemental information during system debug.

Operands

This command has the following operands:

slotnumber	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To view port statistics properties on slot 1 port 3:

```
switch:admin> ptstatsshow 1/3
Port Statistics for slot: 1, port: 3

Connection type: BE
Configured Speed: 2

Interrupts:     60          Link_failure:       0
Unknown:        2           Loss_of_sync:       0
Lli:            20          Loss_of_sig:        0
Proc_rqrd:      40          Protocol_err:       0
Timed_out:      0           Invalid_word:       0
Rx_flushed:     0           Invalid_crc:        0
Tx_unavail:     0           Delim_err:          0
Free_buffer:    0           Address_err:        0
Overrun:        0           Lr_in:              0
Suspended:      0           Lr_out:             0
Parity_err:     0           Ols_in:             0
2_parity_err:   0           Ols_out:            0
CMI_bus_err:    0
--- <output truncated> ---
```

See Also

ptstatsshow

qlDisable

Disable QuickLoop mode.

Synopsis

```
qlDisable
```

Availability

Admin

Release

V3.1.x

Description

Use this command to disable QuickLoop mode on a switch. All QuickLoop ports are re-initialized to fabric mode, allowing public devices to perform fabric login.

If QuickLoop is being run on dual switches, this command disables the local switch and causes the partner switch to re-initialize to a single-switch QuickLoop, containing only the devices connected to the partner switch.

Note: If Advanced Zoning is in use the `qlDisable`, `qlEnable`, and `qlPartner` commands are not in effect. In this case, the `qlPortDisable` command can be used to disable individual ports.

This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry disables QuickLoop mode:

```
switch:admin> qldisable
Setting switch to Fabric mode,
Committing configuration...done.
Re-enable FL_Ports
switch:admin>
```

See Also

qlEnable

qlPortDisable

qlShow

qlEnable

Enable QuickLoop mode.

Synopsis

```
qlEnable
```

Availability

Admin

Release

V3.1.x

Description

Use this command to enable QuickLoop mode on a switch. All devices connected to QuickLoop ports are re-initialized to form a single loop.

If a partner switch is configured, `qlEnable` causes re-initialization of the partner if it is in QuickLoop mode. The devices on the two switches are then combined to form a single loop (using a single AL_PA space).

QuickLoop combines arbitrated loop and fabric topologies. It consists of multiple private arbitrated loops (looplets) interconnected by a fabric, with the existence of the fabric and the physical locations of the devices transparent. All NL_Ports share a single AL_PA space, and operate in accordance with FC-AL.

QuickLoop initialization includes the following two steps:

1. Pass 1: Sequential looplet initialization. Allows each device in a looplet to obtain a unique AL_PA.
2. Pass 2: Full QuickLoop initialization. Brings the QuickLoop up to operation.

Note: If the `qlPortDisable` command has been entered for a specific port, the `qlEnable` command cannot re-enable that port, because it has been removed from QuickLoop management. The port must be specifically re-enabled using the `qlPortEnable` command.

If Advanced Zoning is in use the `qlDisable`, `qlEnable`, and `qlPartner` commands are not in effect. In this case, the `qlPortEnable` command can be used to enable individual ports.

This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry enables QuickLoop mode:

```
switch:admin> qlenable
Setting switch to Quick Loop mode,
Committing configuration...done.
switch:admin>
```

See Also

qlDisable

qlPortEnable

qlShow

qloopAdd

Add a member to a QuickLoop.

Synopsis

```
qloopAdd "qloopname", "member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to add one or more members to an existing QuickLoop.

When a configuration is enabled, all QuickLoops defined in the configuration must resolve to one or two switch World Wide Names.

Zone alias names entered as members of this QuickLoop must be defined with WWNs. Zone alias names that are defined by domain and port number, or AL_PA are not accepted as members of the QuickLoop.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

The following operands are *required*:

qloopname	Specify the name of QuickLoop, in quotation marks.
member	Specify a list of QuickLoop members, in quotation marks, separated by semicolons. Include one or more of the following: ■ World Wide Names ■ Zone alias names

Example

To add an alias for a second World Wide Name to “qlp1”:

```
switch:admin> qloopAdd “qlp1”, “wwn2”
```

See Also

qloopCreate

qloopDelete

qloopRemove

qloopShow

qloopCreate

Create a QuickLoop.

Synopsis

```
qloopCreate "qloopname", "member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to create a QuickLoop.

A QuickLoop name must begin with a letter and be followed by any number of letters, digits, and underscore characters. Names are case sensitive, for example, “Qloop_1” indicates a different QuickLoop than “qloop_1”. Blank spaces are ignored.

The QuickLoop member list must have one or two members; an empty list is not allowed.

When a configuration is enabled, all QuickLoops defined in the configuration must resolve to a maximum of two switch World Wide Names.

Zone alias names entered as members of this QuickLoop must be defined with WWNs. Zone alias names that are defined by domain and port number, or AL_PA are not accepted as members of the QuickLoop.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See “Security Commands” on page 941.

Operands

The following operands are *required*:

qloopname	Specify the name of QuickLoop to be created, in quotation marks. The qloopname cannot be used for another zone object.
member	Specify a list of members to be added to QuickLoop, in quotation marks, separated by semicolons. Include one or more of the following: ■ World Wide Names ■ Zone alias names

Example

To create two QuickLoops, a single switch and one dual switch:

```
switch:admin> qloopCreate "qlp1", "10:00:00:60:69:00:60:11"
switch:admin> qloopCreate "qlp2", "wwn2; wwn3"
```

See Also

qloopAdd

qloopDelete

qloopRemove

qloopShow

qloopDelete

Delete a QuickLoop.

Synopsis: V3.1.x

```
qloopDelete "qloopName"
```

Synopsis: V4.1.x

```
qloopDelete "name"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to delete a QuickLoop.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

The following operands are *required*:

qloopName (V3.1.x only)	Specify the name of QuickLoop, in quotation marks.
name (V4.1.x only)	

Example

To delete QuickLoop “qloop2”:

```
switch:admin> qloopDelete “qloop2”
```

See Also

qloopAdd
qloopCreate
qloopRemove
qloopShow

qloopRemove

Remove a member from a QuickLoop.

Synopsis

```
qloopRemove "qloopName", "member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to remove one or more members from a QuickLoop.

The member list is identified through an exact string match; therefore, when removing multiple members, order is important. For example, if a QuickLoop contains “wwn3; wwn4”, removing “wwn3; wwn4” succeeds, but removing “wwn4; wwn3” fails.

If all members are removed, the QuickLoop is deleted.

When a configuration is enabled, all QuickLoops defined in the configuration must resolve to one or two switch World Wide Names.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See “Security Commands” on page 941.

Operands

The following operands are *required*:

`qloopName`	Specify the name of QuickLoop, in quotation marks.
`member`	Specify the list of QuickLoop members to be removed, in quotation marks, separated by semicolons. Include one or more of the following: ■ World Wide Names ■ Zone alias names

Example

To remove member “wwn2” from “qlp1”:

```
switch:admin> qloopRemove “qlp1”, “wwn2”
```

See Also

qloopAdd

qloopCreate

qloopDelete

qloopShow

qloopShow

Displays QuickLoop information.

Synopsis

`qloopShow` *`[pattern][, mode]`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display QuickLoop configuration information.

If no parameters are specified, all zone configuration information (defined and enabled) is displayed. See `cfgShow` for a description of this display.

If a parameter is specified, it is used as a pattern to match QuickLoop names; those that match in the defined configuration are displayed.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

The following operands are *optional*:

pattern	Specify a POSIX style expression used to match QuickLoop names. Patterns may contain the following special characters: ■ Question mark "?" that matches any single character ■ Asterisk "*" that matches any string of characters ■ Ranges "[0-9a-f]" that match any character within the range
mode	Specify 1 to display the contents of RAM, specify 0 to display the contents of the transaction buffer. The default value is 0.

Example

To display all QuickLoops beginning with the letter "q":

```
switch:admin> qloopShow "q*"
 qloop: qlp1           10:00:00:60:69:00:60:11
                       10:00:00:60:69:00:30:02
 qloop: qlp2           10:00:00:60:69:00:60:13
```

See Also

qloopAdd

qloopCreate

qloopDelete

qloopRemove

qlPartner

Set a QuickLoop partner or display information about a partner.

Synopsis

`qlpartner [0|wwn]`

Availability

Admin

Release

V3.1.x

Description

Use this command to set the QuickLoop to single/dual switch mode or to display the QuickLoop scope setting.

If no argument is specified, this command displays the current QuickLoop mode, which can be single or dual switch. If in dual switch mode, the partner's WWN also displays.

If 0 is used as argument, this command sets the QuickLoop to run in single switch mode, and restarts the switch if this causes a change in mode.

If a non-zero and valid WWN (a WWN that is part of the fabric) for a switch is specified, that switch becomes the QuickLoop partner. The switch is then restarted to run in dual switch mode.

The partner setting is updated in non-volatile memory.

Note: If Advanced Zoning is in use the `qlDisable`, `qlEnable`, and `qlPartner` commands are not in effect. In this case, dual switch QuickLoops can be managed using the telnet commands available through Advanced Zoning.

This command requires an Advanced Zoning license.

Operands

This command has the following operand:

*0	wwn*	Specify 0 to set the QuickLoop to run on a single switch. Specify a WWN to set the QuickLoop to run on dual switches. This operand is optional. If no operand is specified the current value is displayed.

Example

To set another switch as a QuickLoop partner switch:

```
switch:admin> qlPartner "10:00:00:60:69:10:10:ec"
```

See Also

configShow

qlShow

qlPortDisable

Disable a QuickLoop port.

Synopsis

`qlPortDisable` *port*

Availability

Admin

Release

V3.1.x

Description

Use this command to change the specified port from QuickLoop mode to fabric mode. This excludes any devices connected to the port from the QuickLoop, and causes the switch to re-initialize the QuickLoop. If the switch that the port belongs to has a partner that is running in QuickLoop mode, both switches re-initialize the QuickLoop to form a loop that excludes any devices connected to the specified port.

If the `qlPortDisable` command is entered for a port, the `qlEnable` command has no effect on that port, because it has been removed from QuickLoop management. The port must be re-enabled using the `qlPortEnable` command.

The specified port must be in QuickLoop mode for this command to have effect.

Note: This command requires an Advanced Zoning license.

Operands

This command has the following operand:

port	Specify the port number to be modified from QuickLoop mode to fabric mode. Valid values for port number vary depending on the switch type. This operand is required.

Example

To change port 4 from QuickLoop mode to fabric mode:

```
switch:admin> qlPortDisable 4
```

See Also

qlDisable
qlPortEnable
qlShow

qlPortEnable

Enable a QuickLoop port.

Synopsis

```
qlPortEnable port
```

Availability

Admin

Release

V3.1.x

Description

Use this command to change the specified port from fabric mode to QuickLoop mode. This includes any devices connected to this port in the QuickLoop, and causes the switch to re-initialize the QuickLoop.

If the switch that the port belongs to has a partner, and the partner is running in QuickLoop mode, both switches re-initialize their QuickLoops to form a new loop that includes the devices connected to this port.

The specified port must be in fabric mode for this command to have effect.

Note: This command requires an Advanced Zoning license.

Operands

This command has the following operand:

port	Specify the port number to be modified from fabric mode to QuickLoop mode. Valid values for port number vary depending on the switch type. This operand is required.

Example

To change port 4 from fabric mode to QuickLoop mode:

```
switch:admin> qlPortEnable 4
```

See Also

qlEnable
qlPortDisable
qlShow

qlPortShowAll

Displays QuickLoop port information.

Synopsis

```
qlPortShowAll
```

Availability

All users.

Release

V3.1.x

Description

Use this command to display the QuickLoop port information. The following information is displayed:

QuickLoop Mode:

`Enabled`	QuickLoop mode enabled
`Disabled`	QuickLoop mode disabled

Looplet state:

`Online`	Completed loop initialization
`Lipped`	NL_Port lipped
`Lipping`	FL_Port lipped
`Initializing`	Loop initialization in progress
`Bypassed`	Looplet being bypassed
`Error`	Error found in this looplet
`Offline`	Looplet offline
`Fabric`	OLD_PORT state

Not in QuickLoop Mode:

Port is not in QuickLoop mode

Note: This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry displays QuickLoop port information:

```
switch:admin> qlPortShowAll
PortNum QuickLoop Mode  Port State
 0      Disabled        ----            E PORT
 1      Disabled        ----            E PORT
 2      Disabled        ----            E PORT
 3      Disabled        ----            E PORT
 4      Disabled        ----            E PORT
 5      Disabled        ----            E PORT
 6      Disabled        ----            E PORT
 7      Disabled        ----            E PORT
switch:admin>
```

See Also

portStatShow

qlShow

qlShow

Displays QuickLoop information.

Synopsis

```
qlShow
```

Availability

All users.

Release

V3.1.x

Description

Use this command to display the following QuickLoop information:

Self:	World Wide Name and domain ID of this switch.
Peer:	World Wide Name and domain ID of partner switch. Peer is displayed only if the switch has a partner configured.
State:	The state of the QuickLoop: ■ Master - Master switch in dual switch QuickLoop ■ Non-master - Non-master in dual switch QuickLoop ■ Local Lip - Looplet on local switch lipped ■ Remote Lip - Looplet on partner switch lipped ■ Online - Switch is online ■ Offline - Switch is offline
Scope:	Dual or single (indicating dual or single switch QuickLoop)
AL_PA bitmap:	The AL_PA bitmaps of devices on the QuickLoop.
Remote AL_PAs	AL_PAs of devices on partner switch. AL_PAs are listed per port base.
Local AL_PAs	AL_PAs of devices connected to this switch. AL_PAs are listed per port base.

Local looplet state	Indicates state of local looplet.
Member:	Current QuickLoop member ports.
Online:	Current online ports in the QuickLoop.
Looplet:	The state of each looplet. The possible states are:

Online:	Loop initialization completed
Lipped:	NL_Port initiated LIPs
Lipping:	FL_Port initiated LIPs
Initializing:	Looplet initialization in progress
Bypassed:	Looplet being bypassed
Error:	Error found in this looplet
Offline:	Looplet offline

Note: This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry displays QuickLoop information:

```
switch:admin> qlShow
Self:   10:00:00:60:69:20:26:2a domain 1
State:  Online
Scope:  single
AL_PA bitmap:   00000000 00000000 00000000 00000000
Local AL_PAs
                (not available)

Local looplet states
Member:     0 1 2 3 4 5 6 7
Online:     - - - - - - - -

Looplet 0:  offline
Looplet 1:  offline
Looplet 2:  offline
Looplet 3:  offline
Looplet 4:  offline
Looplet 5:  offline
Looplet 6:  offline
Looplet 7:  offline
switch:admin>
```

See Also

qlStatsShow

qlStatsShow

Displays QuickLoop statistics.

Synopsis

```
qlStatsShow
```

Availability

All users.

Release

V3.1.x

Description

Use this command to display the following QuickLoop switch statistics:

`Last QL init time:`	Time of last QuickLoop initialization.
`QL init attempted:`	Number of QuickLoop initialization attempts.
`QL init succeeded:`	Number of times QuickLoop is initialized.
`Single switch QL:`	Number of times as single switch QuickLoop. These numbers are only valid when two switches are configured to run as peers in QuickLoop.
`Dual switch QL:`	Number of times as dual switch QuickLoop. These numbers are only valid when two switches are configured to run as peers in QuickLoop.
`QL enabled:`	Number of times QuickLoop is enabled.
`QL disabled:`	Number of times QuickLoop is disabled.
`Port caused QL init:`	Port that caused last QuickLoop initialization.

Note: This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry displays QuickLoop switch statistics:

```
switch:admin> qlStatsShow
Quick loop statistics for switch 2
Last QL init time               : Jan  1 00:00:00.000
QL init attempted               : 0
QL init succeeded               : 0
Single switch QL                : 0
Dual switch QL                  : 0
QL enabled                      : 0
QL disabled                     : 0
Port started last init          : 0 on switch 2
switch:admin>
```

See Also

portStatShow

qlShow

quietMode

Toggle the shell quiet mode on and off.

Synopsis

`quietMode` *[mode]*

Availability

All users (display).

Admin (set/clear).

Release

V3.1.x

Description

Use this command to change the output displayed on the switch console (serial port or telnet session).

By default, quiet mode is off and all switch tasks can send output to the console, including output caused by asynchronous events, such as the fabric reconfiguring, or devices logging in.

When quiet mode is on, only output produced by shell commands is shown; asynchronous output produced by other tasks is suppressed.

Turn quiet mode on when driving a telnet session using a script that does not expect asynchronous output.

Operands

This command has the following operand:

mode	Specify 0 to disable quiet mode where all tasks are printed in the console. Specify 1 to set quiet mode where only shell commands are displayed in the console. This operand is optional. If no operand is specified the current value is displayed.

Example

To display the current mode, then reset to ON:

```
switch:admin> quietMode
Quiet Mode is OFF
switch:admin> quietMode 1
Committing configuration...done.
Quiet Mode is now ON
switch:admin>
```

See Also

ramTest

ramTest

Bit write and read test of SDRAMs in the switch.

Synopsis

`ramTest` *`[patternSize]`*

Availability

Admin

Release

V3.1.x

Description

Use this command to verify the address and data bus of the SDRAMs that serve as CPU memory in the switch.

The test consists of two subtests:

1. The *address subtest* verifies that SDRAM locations can be uniquely accessed.

   The method used is to write a unique pattern to each location in the SDRAMs. When all are written, the data is read back from each location and compared against the data previously written. A failure in the test implies that the address path between the CPU and the SDRAMs is faulty resulting in failures to program unique values.

   Following is the ramp pattern used in the test:

   ```
   0x57626f42, 0x57626f43, 0x57626f44, 0x57626f45, ...
   ```

2. The data subtest verifies that each cell in the SDRAMs can be independently written and read, and that there are no short, stuck-at-1, or stuck-at-0 faults between data cells.

The method used is to write pattern D to location N, write the complementary pattern D to location N+1, and then read and compare location N to location N+1. Bump the location to test: N=N+1. Repeat the double write and read until all locations are tested with the following patterns:

- 0x55555555
- 0x69696969
- 0x3c3c3c3c
- 0x1e1e1e1e
- 0x87878787
- 0x14284281
- 0x137ffec8
- 0x0f0f0f0f
- 0x00000000

Since the test requires the operating system to operate, it does not and cannot test all 16 MB of the memory. Instead it tests the largest portion as given by the OS, which is typically about 13 MB.

Operands

This command has the following operand:

patternSize	Specify a number from 0 to 9 to determine the number of patterns used for the data subtest. The default value is 0 which runs all nine patterns. A value from 1 to 9 will execute the specified number of patterns. Any value over 9 is truncated to 9. Only the data subtest is configurable. The address subtest is always executed. This operand is optional.

Example

To run the RAM test on a switch:

```
switch:admin> ramTest
Running System DRAM Test ...... passed.
```

Errors

Listed below are possible error messages if failures are detected:

```
DIAG-MEMORY
DIAG-MEMSZ
DIAG-MEMNULL
```

See Also

camtest

centralmemorytest

cmemretentiontest

crossporttest

cmitest

filtertest

portloopbacktest

portregtest

spinsilk

sramretentiontest

statstest

reboot

Reboot the switch.

Synopsis

```
reboot
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to reboot the switch. The reboot takes effect immediately as the switch resets, then executes the normal power-on booting sequence.

While the switch is rebooting, the telnet session is closed and all Fibre Channel ports are inactive. If the switch was part of a fabric, the remaining switches reconfigure.

Note: For the StorageWorks Core switch, the `reboot` command will reboot both logical switches and both CPs. A confirmation message is displayed to verify that you want to reboot the switch.

Operands

None.

Example

This example is for the StorageWorks Core switch:

```
switch:admin> reboot
Warning: This command is being run on a control processor (CP) based system
and will cause the active CP to reboot. This will cause disruption to devices
attached to both switch 0 and switch 1.

To just reboot a logical switch on this system, use command switchreboot(1M)
on the logical switch you intend to reboot.
Are you sure you want to reboot the active CP [y/n]? y
```

See Also

fastboot

switchreboot

routeHelp

Displays routing help commands.

Synopsis

```
routeHelp
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display routing help commands.

Operands

None.

Example

To view a list of routing related commands:

```
switch:admin> routeHelp

bcastShow               Print broadcast tree information
dlsReset                Turn off Dynamic Load Sharing
dlsSet                  Turn on Dynamic Load Sharing
dlsShow                 Print state of Dynamic Load Sharing
fspfShow                Print FSPF global information
interfaceShow           Print FSPF interface information
iodReset                Turn off In-Order Delivery
iodSet                  Turn on In-Order Delivery
iodShow                 Print state of In-Order Delivery
linkCost                Set or print the FSPF cost of a link
LSDbShow                Print Link State Database entry
mcastShow               Print multicast tree information
nbrStateShow            Print neighbor's summary information
nbrStatsClear           Reset FSPF neighbor's counters
topologyShow            Print paths to domain(s)
uRouteConfig            Configure static unicast route
uRouteRemove            Remove static unicast route
uRouteShow              Print port's unicast routing info

switch:admin>
```

See Also

bcastShow

interfaceShow

uRouteShow

savecore

Save or remove core files created by daemons.

Synopsis

```
savecore [-h host_name][-u user_name][-p password]
[-d remote_directory]
```

Availability

Admin

Release

V4.1.x

Description

Use this command to FTP or delete core files that were created by daemons during signal processing such as SIGSEGV, SIGILL etc. The flags are useful only during FTP process and will be used as default value while taking these parameters interactively, except for *-p password*, which will not be prompted for if given in the command line.

Operands

This command has the following operands:

-h host_name	Specify a host-name if FTP requires it.
-u user_name	Specify a user-name for login in the above host-name default will be anonymous.
-p password	Specify a password for the above user-name.
-d remote_directory	Specify the name of the remote directory into which the core files are copied into. The directory will be created if it does not already exists. It is assumed that the user has sufficient privilege to create files at this location.

Example

To remove core files from the current switch:

```
switch:admin> savecore
following 1 directories contains core files:
         [ ]0: /mnt/core_files/secd

         Welcome to core files management utility.

         Menu
         1(or R): Remove all core files
         2(or F): FTP all core files
         3(or r): Remove marked files
         4(or f): FTP marked files
         5(or m): Mark Files for action
         6(or u): Un Mark Files for action
         9(or e): Exit

Your choice: 1
         /mnt/core_files/secd

         You have opted to remove ALL core files:-
Please confirm (Y/[N]): y
Removing files....
 removing core files under: /mnt/core_files/secd
Done!
switch:admin> savecore
No core files found!
switch:admin>
```

See Also

diaghelp

secfabricshow

Displays security related fabric information.

Synopsis

```
secfabricshow
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command displays the security related information about the fabric.

The information displayed is as follows:

Role	Displays whether the switch is the Primary FCS, Backup FCS, or Non FCS.
WWN	Displays the world wide name of the switch.
DId	Displays the Domain of the switch.
Status	Displays the security state of the switch. Ready - This switch is in a stable state. Busy - This switch is updating its security database. Error - This switch's security database is inconsistent with the Primary FCS.
Enet IP Addr	Displays the Ethernet IP address.
Name	Displays the switch name.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To display security related fabric information on the Primary FCS switch:

```
primaryfcs:admin> secfabricshow
Role    WWN                     DId Status  Enet IP Addr    Name
=================================================================
non-FCS 10:00:00:60:69:10:03:23   1 Ready   192.168.100.148 "nonfcs"
Backup  10:00:00:60:69:00:12:53   2 Ready   192.168.100.147 "backup"
Primary 10:00:00:60:69:22:32:83   3 Ready   192.168.100.135 "primaryfcs"
_________________________________________

Secured switches in the fabric: 3
primaryfcs:admin>
```

See Also

secpolicydump

secpolicyshow

secfcsfailover

Enables a Backup FCS switch to take over as Primary FCS switch.

Synopsis

```
secfcsfailover
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable a Backup FCS switch to take over as the Primary FCS switch.

This command can only be issued on a Backup FCS switch. After this command is issued, the current Primary FCS switch will abort its current transaction and move the Backup FCS switch where this command is issued to be the first member in the FCS list. The current Primary FCS switch will then activate the new policy set and the Backup FCS switch which issued this command will become the new Primary FCS switch in the fabric.

The purpose of this command is to recover from a scenario where all available access to the Primary FCS switch is lost, such as the Ethernet and serial connections.

Operands

None.

Example

To enable a Backup FCS switch to take over as the Primary FCS switch:

```
switch:admin> secfcsfailover
This switch is about to become the Primary FCS switch.
All transactions of the current Primary FCS switch will be aborted.
ARE YOU SURE  (yes, y, no, n): [no] y

WARNING!!!
The FCS policy of Active and Defined Policy sets have been changed.
Review them before you issue secPolicyActivate again.
switch:admin>
```

See Also

secfabricshow

secmodedisable

secmodeenable

secmodeshow

sechelp

Displays information about security telnet commands.

Synopsis

```
sechelp
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display a list of security telnet commands. See "Security Commands" on page 941.

Operands

None.

Example

To display a list of security telnet commands:

```
switch:admin> sechelp

secFabricShow           Display security related fabric information
secFCSFailover          Force primary role to this FCS switch
secModeEnable           Enable security mode
secModeDisable          Disable security mode
secModeShow             Show current mode of security
secNonFCSPasswd         Set non FCS password
secPolicyAbort          Abort changes to defined policy
secPolicyActivate       Activate all policy sets
secPolicyAdd            Add members to a policy
secPolicyCreate         Create a policy
secPolicyDelete         Delete a policy
secPolicyFCSMove        Move a FCS member in the FCS list
secPolicyRemove         Remove members from a policy
secPolicySave           Save all policy sets and send to switches
secPolicyShow           Show members of one or more policies
secPolicyDump           Dump all policies
secStatsReset           Reset security statistics
secStatsShow            Display security statistics
secTempPasswdSet        Set temporary password
secTempPasswdReset      Reset temporary password
secTransAbort           Abort current transaction
secVersionReset         Reset version stamp

switch:admin>
```

See Also

None.

secmodedisable

Disable security mode.

Synopsis

```
secmodedisable
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to disable security mode on all switches in the fabric. This command deletes both the defined and active security database.

Note: This command must be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To disable security mode:

```
primaryfcs:admin> secmodedisable

Warning!!!
About to disable security.
ARE YOU SURE (yes, y, no, n): [no] y
Committing configuration...done.
Removing Active FMPS...
done
Removing Defined FMPS...
done
Disconnecting current session.
```

See Also

secfabricshow

secmodeenable

secmodeshow

secmodeenable

Enable security mode.

Synopsis

```
secmodeenable ["fcsmember;fcsmember"]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable security mode on all switches in the fabric. This command fails if any switch in the fabric is not capable of enforcing the security policies defined in the security database. If no operand is specified the command becomes interactive.

Note: `sectelnet` must be used to open a secure telnet session into a switch.

This command sets up security in the fabric by executing the following:

- Activates security mode on all switches in the fabric
- Creates the security database populated with a list of FCS switches in the FCS_POLICY
- Distributes the security database to all switches in the fabric
- Resets the Root, Factory, Admin, and User account passwords on all FCS switches
- Resets the Admin account password on all Non FCS switches
- Disables the Root, Factory, and User accounts on all non-FCS switches in the fabric

The administrator is prompted to enter passwords for the following accounts:

- Factory
- Root
- Admin
- User

If the fabric is not in secure mode and one or more specified FCS switches are present in the fabric, the command must be issued on the first active FCS in the list.

If the fabric is not in secure mode and no specified FCS switches are present in the fabric, the command can be issued on any switch.

If the fabric is not in secure mode and this command is issued, the switch reboots.

If the fabric is in secure mode and no FCS switches are present in the fabric, the command can be issued on any switch. This is used to recover a secure fabric that has no FCS switch.

Note: Make sure that all users (using Fabric OS CLI or Web Tools) are logged off the fabric before enabling security mode. All users who are logged into the fabric on non-FCS switches when this command executes have their telnet sessions terminated.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operand:

fcsmember	Specify a list of FCS switches. The list of member switches must be enclosed in quotation marks and each member switch must be separated by semicolons. The members can be specified using Domain, WWN, or switch name format. For example: "5; 10:00:00:60:69:00:00:20; star1" If a member is specified by Domain, or switch name, the switch must be in the fabric or the command fails. This operand is optional. If no operand is specified the session becomes interactive and you are prompted to enter FCS member values.

Example

To enable a security policy that includes three FCS switches specified by Domain, WWN address, and switch name:

```
fcsprimary:admin> secmodeenable
This is an interactive session to create a FCS list.

Current FCS list is empty
Enter WWN, Domain, or switch name(Leave blank when done): 2
Switch WWN is 10:00:00:60:69:11:fc:53

Current FCS list:
  10:00:00:60:69:11:fc:53

Enter WWN, Domain, or switch name(Leave blank when done): 1
Switch WWN is 10:00:00:60:69:11:fc:55

Current FCS list:
  10:00:00:60:69:11:fc:53
  10:00:00:60:69:11:fc:55

Enter WWN, Domain, or switch name(Leave blank when done):
Are you done?  (yes, y, no, n): [no] y
Is the FCS correct?  (yes, y, no, n): [no] y
New FCS switch root password:
Password must differ by at least 1 position
New FCS switch root password:
Re-enter new password:
New FCS switch factory password:
Re-enter new password:
New FCS switch admin password:
Re-enter new password:
New FCS switch user password:
Re-enter new password:
New Non FCS switch admin password:
Re-enter new password:
Saving passwd...done.
Saving Defined FMPS ...
done
Saving Active FMPS ...
done
Committing configuration...done.
Secure mode is enabled.
Saving passwd...done.
Rebooting...
```

See Also

secfabricshow
secmodedisable
secmodeshow

secmodeshow

Displays if security mode is enabled or disabled.

Synopsis

```
secmodeshow
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display the current security mode of the fabric. The fabric can be in secure mode or non secure mode. If the fabric is in secure mode, the following information is displayed:

- Version stamp - Displays the current version and build date and time of the security database.
- FCS switches - Displays a list of FCS switches.
- Primary - Displays whether the switch is a Primary FCS or Backup FCS.
- WWN - Displays the WWN of the FCS switch.
- Did - Displays the Domain of the FCS switch.
- swName - Displays the alias name of the FCS switch.

Note: This command must be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To display the current security mode of a fabric:

```
primaryfcs:admin> secmodeshow
Secure Mode: ENABLED.
Version Stamp: 9182, Wed Mar 13 16:37:01 2001.
POS  Primary  WWN                       DId   swName.
================================================
1    Yes      10:00:00:60:69:00:00:5a  21    SW47.
2    No       12:00:00:60:60:03:23:5b   5    SW12.
primaryfcs:admin>
```

See Also

secfabricshow

secmodedisable

secmodeenable

secnonfcspasswd

Set the Admin password for non-FCS switches.

Synopsis

```
secnonfcspasswd
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to change the Admin password on all non-FCS switches in the fabric. This command can only be issued from the Primary FCS switch in secure mode. The changed passwords are persistent across reboots. All non-FCS switches that join the fabric in the future will inherit this new password.

This command also disables the root and factory accounts on all non-FCS switches in the fabric.

The password must be between 8 and 40 characters long, and may consist of any combination of alpha-numeric characters.

Note: Make sure no users are logged into the network when this command is executed. All users logged into the fabric as Admin on non-FCS switches will have their telnet sessions terminated.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To set the Admin password for all non-FCS switches in the fabric:

```
primaryfcs:admin> secnonfcspasswd

Non FCS switch password:
Re-enter new password:
Committing configuration...done.
primaryfcs:admin>
```

See Also

passwd

secmodeenable

secmodedisable

secmodeshow

sectemppasswdset

secpolicyabort

Aborts all changes to the defined database that have not been saved.

Synopsis

```
secpolicyabort
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to abort all changes to the defined security database that have not been saved to flash memory.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To abort all changes that have not been saved to flash memory:

```
primaryfcs:admin> secpolicyabort
Unsaved data has been aborted.
primaryfcs:admin> secpolicyabort
No new data to abort.
```

See Also

secpolicyactivate
secpolicyadd
secpolicycreate
secpolicydelete
secpolicydump
secpolicyremove
secpolicysave
secpolicyshow

secpolicyactivate

Apply defined policy set to all switches in the fabric.

Synopsis

```
secpolicyactivate
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to activate the current defined security policy to all switches in the fabric. After activation the defined policy set becomes the active policy set.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To activate the defined security policy set to all switches in the fabric:

```
primaryfcs:admin> secpolicyactivate
About to overwrite the current Active data.
ARE YOU SURE (yes, y, no, n): [no] y
Committing configuration...done.
Saving Defined FMPS ...
done
Saving Active FMPS ...
done
primaryfcs:admin>
```

See Also

secpolicyabort
secpolicyadd
secpolicycreate
secpolicydelete
secpolicydump
secpolicyremove
secpolicysave
secpolicyshow

secpolicyadd

Add members to an existing policy.

Synopsis

```
secpolicyadd "name", "member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to add members to an existing access policy. The new members must not already be members within the policy or the command fails.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security is first enabled using the `secmodeenable` command only the FCS_POLICY exists. Before a policy is created, there is no enforcement for that management method, that is, all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If all members are then deleted from the policy, all access is denied for that management access method (the DCC_POLICY and OPTIONS_POLICY are exceptions).

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

name

Specify the name of an existing policy you want to add members to. Valid values for this operand are:

- DCC_POLICY_nnn
- FCS_POLICY
- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY_nnn name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but are case sensitive.

member

Specify a list of member switches for the security policy. The members must be enclosed in quotation marks and separated by semicolons. Depending on the Policy type members can be specified using IP address, WWN, Domain, switch name, or other.

IP Address Member Policy Types

The following policy types require members be specified by IP address:

- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY

These policy types require member IPs to be specified in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.

WWN Member Policy Types

The following policy types require members be specified by WWN address:

- FCS_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY

These policy types require members be specified as WWN strings, Domain ID, or switch names. If Domain ID or switch names are used, the switches associated must be present in the fabric or the command fails.

DCC_POLICY Members

The DCC_POLICY_nnn is a list of devices associated with a specific switch and port combination. An empty DCC_POLICY does not stop access to the switch. The device is specified with a WWN string. The switch and port combination must be in the following format:

```
<switch><port>
```

where:

<switch> can be specified using WWN, Domain, or switch name.

<port> can be specified by port number separated by commas, and enclosed in either brackets or parenthesis. For example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples show several ways to specify the port values:

(1-6) = selects ports 1 through 6.

(*) = selects all ports on the switch.

[3, 9] = selects ports 3 and 9 and all devices attached to those ports.

[1-3, 5] = selects ports 1 though 3 and 5 and all devices attached to those ports.

[*] = selects all ports on the switch and devices currently attached to those ports.

OPTIONS_POLICY members

"NoNodeWWNZoning" is the only option.

Example

Adding a member to the MS_POLICY using the device WWN:

```
primaryfcs:admin> secpolicyadd "MS_POLICY", "12:24:45:10:0a:67:00:40"
Member(s) have been added to MS_POLICY.
primaryfcs:admin>
```

Adding an SNMP manager to WSNMP_POLICY:

```
primaryfcs:admin> secpolicyadd "WSNMP_POLICY", "192.168.5.21"
Member(s) have been added to WSNMP_POLICY.
primaryfcs:admin>
```

See Also

secpolicyabort
secpolicyactivate
secpolicycreate
secpolicydelete
secpolicydump
secpolicyremove
secpolicysave
secpolicyshow

secpolicycreate

Create a new policy.

Synopsis

`secpolicycreate` *`name[, "member;member"]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to create a new policy. All policies can be created only once, except for the DCC_POLICY_nnn. Each DCC_POLICY_nnn must each have a unique name.

Adding members while creating a policy is optional. You may add members to a policy later, using the `secpolicyadd` command.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security is first enabled using the `secmodeenable` command only the FCS_POLICY exists. Before a policy is created, there is no enforcement for that management method, that is, all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If all members are then deleted from the policy, all access is denied for that management access method.

Note: The FCS_POLICY can only be created when enabling security mode using the `secmodeenable` command.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

If a TELNET_POLICY or SERIAL_POLICY is created that will end the current sectelnet or serial session, a warning is issued.

Operands

This command has the following operands:

name

Specify the name of a policy you want to create. Valid values for this operand are:

- DCC_POLICY_nnn
- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY_nnn name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names. Valid values for DCC_POLICY_nnn are user defined alphanumeric or underscore characters. The maximum length is 30 characters, including the prefix DCC_POLICY_.

member

Specify a list of members for the security policy. The members must be enclosed in quotation marks and separated by semicolons. Depending on the Policy type members can be specified using IP address, WWN, Domain, or switch name.

IP Address Member Policy Types

The following policy types require members be specified by IP address:

- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY

These policy types require member IDs in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.

WWN Member Policy Types

The following policy types require members be specified by WWN address:

- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY

These policy types require member IDs be specified as WWN strings, Domains, or switch names. If Domain or switch names are used, the switches associated must be present in the fabric or the command fails.

DCC_POLICY Members

The DCC_Policy_nnn is a list of devices associated with a specific switch and port combination. The device is specified with a WWN string. The switch and port combination must be in the following format:

```
<switch><port>
```

where:

<switch> can be specified using WWN, Domain, or switch name.

<port> can be specified by port number separated by commas, and enclosed in either brackets or parenthesis. For example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples show several ways to specify the port values:

(1-6) = selects ports 1 through 6.

(*) = selects all ports on the switch.

[3, 9] = selects ports 3 and 9 and all devices attached to those ports.

[1-3, 5] = selects ports 1 though 3 and 5 and all devices attached to those ports.

[*] = selects all ports on the switch and devices currently attached to those ports.

OPTIONS_POLICY members

"NoNodeWWNZoning" is the only option.

SCC_POLICY Members

This policy type requires member IDs be specified as WWN strings, Domains, or switch names. If Domain or switch names are used, the switches associated must be present in the fabric or the command fails.

To add all switches in the current fabric as members of the SCC_POLICY enter an asterisk "*" enclosed in quotation marks as the member value. This feature cannot be used by the other security telnet commands.

Example

Create a new single MS_POLICY that enables access through a device that has WWN of 12:24:45:10:0a:67:00:40:

```
primaryfcs:admin> secpolicycreate "MS_POLICY", "12:24:45:10:0a:67:00:40"
MS_POLICY has been created.
primaryfcs:admin>
```

Create a new Front Panel policy that only enables Domains 3 and 4 to use the front panel:

```
primaryfcs:admin> secpolicycreate "FRONTPANEL_POLICY", "3; 4"
FRONTPANEL_POLICY has been created.
primaryfcs:admin>
```

Create a Device policy to allow 2 devices to attach to Domain 3 ports 1 and 3. The WWN of first device is 11:22:33:44:55:66:77:aa, and the WWN of second device is 11:22:33:44:55:66:77:bb:

```
primaryfcs:admin> secpolicycreate "DCC_POLICY_aB_7",
"11:22:33:44:55:66:77:aa;11:22:33:44:55:66:77:bb;3[1,3]"
DCC_POLICY_abc has been created.
primaryfcs:admin>
```

Create a Telnet policy to allow anyone on the 192.168.5.0/24 network to access the fabric through sectelnet:

```
primaryfcs:admin> secpolicycreate "TELNET_POLICY", "192.168.5.0"
TELNET_POLICY has been created.
primaryfcs:admin>
```

See Also

secpolicyabort
secpolicyactivate
secpolicyadd
secpolicydelete
secpolicydump
secpolicyremove
secpolicysave
secpolicyshow

secpolicydelete

Delete an existing policy.

Synopsis

```
secpolicydelete "name"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to delete an existing defined policy. The FCS_POLICY can not be deleted through this command, since this policy must exist to maintain security mode.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security is first enabled using the `secmodeenable` command only the FCS_POLICY exists. Before a policy is created, there is no enforcement for that management method, that is, all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If the policy is deleted all access is granted.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operand:

name

Specify the name of a security policy to delete. The policy name must be enclosed in quotation marks. Valid security policy names are:

- DCC_POLICY_nnn
- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY_nnn name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names.

This operand is required.

Note: Once a Security policy is deleted, fabric wide switch access through that method is unrestricted.

Example

To delete an existing security policy:

```
primaryfcs:admin> secpolicydelete "MS_POLICY"
About to delete policy MS_POLICY.
Are you sure (yes, y, no, n):[no] y
MS_POLICY has been deleted.
primaryfcs:admin>
```

See Also

secpolicyabort
secpolicyactivate
secpolicyadd
secpolicycreate
secpolicydump
secpolicyremove
secpolicysave
secpolicyshow

secpolicydump

Show all members of existing policies.

Synopsis

`secpolicydump [listtype[, name]]`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display the members of an existing policy in the Active and Defined (saved) databases with no page breaks.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

listtype — Specify which database to display. The name for active database is "Active"; the name for saved, defined database is "Defined." If not specified, all databases are displayed. This operand is optional. An asterisk (*) can be used to specify both Active and Defined.

name — Specify the name of a security policy you would like to view. Valid values for this operand are:

- DCC_POLICY_nnn
- FCS_POLICY
- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY_nnn name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names.

This operand is optional.

Example

To view all security policy information from all databases (active, updating, defined) without page breaks:

```
primaryfcs:admin> secpolicydump
_____________________________________________________
                DEFINED POLICY SET

FCS_POLICY
   Pos   Primary WWN                       DId swName
   _____________________________________________________
     1   Yes     10:00:00:60:69:30:15:5c   1 primaryfcs

HTTP_POLICY
   IpAddr
   _____________________________________________________
   192.155.52.0
_____________________________________________________

_____________________________________________________
               ACTIVE POLICY SET

FCS_POLICY
   Pos   Primary WWN                       DId swName
   _____________________________________________________
     1   Yes     10:00:00:60:69:30:15:5c   1 primaryfcs

HTTP_POLICY
   IpAddr
   _____________________________________________________
   192.155.52.0
   192.155.53.1
   192.155.54.2
   192.155.55.3

_____________________________________________________
primaryfcs:admin>
```

To view all security policy information for the TELNET_POLICY without page breaks:

```
primaryfcs:admin> secpolicydump "*", "TELNET_POLICY"
_____________________________________________________
                DEFINED POLICY SET

TELNET_POLICY
   IpAddr
   ___________________________________________________
   192.155.52.13
   192.155.52.11
_____________________________________________________

_____________________________________________________
                ACTIVE POLICY SET

TELNET_POLICY
   IpAddr
   ___________________________________________________
   192.155.52.0

_____________________________________________________
primaryfcs:admin>
```

See Also

secpolicyabort

secpolicyactivate

secpolicyadd

secpolicycreate

secpolicydelete

secpolicyremove

secpolicysave

secpolicyshow

secpolicyfcsmove

Move a member in the FCS policy.

Synopsis

```
secpolicyfcsmove [From, To]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to move an FCS member from one position to another position in the FCS list. Only one FCS can be moved at a time. The first FCS switch in the list that is also present in the fabric is the Primary FCS.

If no parameters are specified, the command becomes interactive and prompts for valid values for the operands.

Note: This command must be issued from the Primary FCS switch. If a Backup FCS is moved to the first position, then it becomes the Primary FCS after activation.

Operands

This command has the following operands:

From	Specify the position number of the FCS switch you want to move.
To	Specify the position that you want to move the FCS switch to.

If no operand is specified the command becomes interactive and you are prompted for values.

Example

To move Backup FCS switch at position 2 to position 3 in the FCS list:

```
switch5:admin> secpolicyfcsmove
Pos    Primary WWN                     DId swName.
================================================
  1    Yes     10:00:00:60:69:10:02:18   1 switch5.
  2    No      10:00:00:60:69:00:00:5a   2 switch60.
  3    No      10:00:00:60:69:00:00:13   3 switch73.

Please enter position you'd like to move from  : (1..3) [1] 2

Please enter position you'd like to move to  : (1..3) [1] 3

_____________________________________________________
                DEFINED POLICY SET

FCS_POLICY
 Pos    Primary WWN                      DId swName
 ____________________________________________________
  1    Yes     10:00:00:60:69:10:02:18   1 switch5.
  2    No      10:00:00:60:69:00:00:13   3 switch73.
  3    No      10:00:00:60:69:00:00:5a   2 switch60.

_____________________________________________________
switch5:admin>
```

See Also

secfabricshow
secpolicyabort
secpolicyactivate
secpolicyadd
secpolicycreate
secpolicydelete
secpolicydump
secpolicyremove
secpolicysave
secpolicyshow

secpolicyremove

Remove members from an existing policy.

Synopsis

```
secpolicyremove "name", "member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to remove members from an existing security policy. If a policy is empty after removing all members, all accesses to the policy are disallowed (the DCC_POLICY and OPTIONS_POLICY are an exception). You cannot remove all members from the FCS_POLICY, and you cannot remove the FCS members from the SCC_POLICY.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

name

Specify the name of an existing policy you want to remove members from. Valid values for this operand are:

- DCC_POLICY_nnn
- FCS_POLICY
- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY policy name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but are case sensitive.

This operand is required.

member

Specify a member or list of members to delete from the policy. The members must be enclosed in quotation marks and separated by semicolons. This operand is required. Depending on the policy type, members can be specified using IP address, WWN, Domain, or switch name.

IP Address Member Policy Types

The following policy types require members be specified by IP address:

- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY

These policy types require member IDs in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.

WWN Member Policy Types

The following policy types require members be specified by WWN address:

- FCS_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY

These policy types require member IDs be specified as WWN strings, Domains, or switch names. If Domain or switch names are used, the switches associated must be present in the fabric or the command fails.

DCC_POLICY Members

The DCC_Policy_nnn is a list of devices associated with a specific switch and port combination. The device is specified with a WWN string. The switch and port combination must be in the following format:

```
<switch><port>
```

where:

<switch> can be specified using WWN, Domain, or switch name.

<port> can be specified by port number separated by commas, and enclosed in either brackets or parenthesis. For example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples show several ways to specify the port values:

(1-6) = selects ports 1 through 6.

(*) = selects all ports on the switch.

[3, 9] = selects ports 3 and 9 and all devices attached to those ports.

[1-3, 5] = selects ports 1 though 3 and 5 and all devices attached to those ports.

[*] = selects all ports on the switch and devices currently attached to those ports.

OPTIONS_POLICY members

"NoNodeWWNZoning" is the only option.

Example

Remove a member that has a WWN of 12:24:45:10:0a:67:00:40 from MS policy:

```
primaryfcs:admin> secpolicyremove "MS_POLICY", "12:24:45:10:0a:67:00:40"
Member(s) have been removed from MS_POLICY. .
primaryfcs:admin>
```

See Also

secpolicyabort
secpolicyactivate
secpolicyadd
secpolicycreate
secpolicydelete
secpolicydump
secpolicysave
secpolicyshow

secpolicysave

Save a defined security policy to flash memory on all switches in the fabric.

Synopsis

```
secpolicysave
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to save a defined security policy to flash memory of all switches in the fabric.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To save new policy set in all switches in the fabric:

```
primaryfcs:admin> secpolicysave
Committing configuration...done.
Saving Define FMPS ...
done
primaryfcs:admin>
```

See Also

secpolicyabort
secpolicyactivate
secpolicyadd
secpolicycreate
secpolicydelete
secpolicydump
secpolicyremove
secpolicyshow

secpolicyshow

Show an existing security policy.

Synopsis

`secpolicyshow [listtype[, name]]`

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display the members of an existing policy in the Active, or Defined security policy database. Users can specify which database to display. If not specified, all database are displayed.

Users can specify to view a security policy by name. If no name is specified, all policies are displayed.

This command displays the policy database one page at a time. Use `secpolicydump` to display the policy database without page breaks.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

listtype — Specify which database to display. The name for active database is "Active"; the name for saved, defined database is "Defined." This operand must be enclosed in quotation marks. If not specified, all databases are displayed. This operand is optional. Use an asterisk (*) to specify both Active and Defined.

name — Specify the name of a security policy you would like to view. Valid values for this operand are:

- DCC_POLICY_nnn
- FCS_POLICY
- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY_nnn name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but are case sensitive.

This operand is optional.

Example

Show all security policies from all databases:

```
primaryfcs:admin> secpolicyshow "active"
_____________________________________________________
               ACTIVE POLICY SET

FCS_POLICY
   Pos   Primary WWN                     DId swName
   ___________________________________________________
     1   Yes     10:00:00:60:69:30:15:5c   1 primaryfcs

HTTP_POLICY
   IpAddr
   ___________________________________________________
   192.155.52.0


_____________________________________________________
primaryfcs:admin>
primaryfcs:admin> secPolicyShow "defined"
_____________________________________________________
               DEFINED POLICY SET

FCS_POLICY
   Pos   Primary WWN                     DId swName
   ___________________________________________________
     1   Yes     10:00:00:60:69:30:15:5c   1 primaryfcs

HTTP_POLICY
   IpAddr
   ___________________________________________________
   192.155.52.0
   192.155.53.1
   192.155.54.2
   192.155.55.3
   192.155.56.4


_____________________________________________________
primaryfcs:admin>
```

See Also

secpolicyabort
secpolicyactivate
secpolicyadd
secpolicycreate
secpolicydelete
secpolicydump
secpolicyremove
secpolicysave

secstatsreset

Reset security statistic for a policy or all policies to zero.

Synopsis

`secstatsreset` *[name][,list]*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to reset statistic data for a particular policy or all policies to zero. This command can be issued to any switch. If issued on the Primary FCS switch, this command can reset security statistics for any or all switches in the fabric.

Operands

This command has the following operands:

name

Specify the name of a security statistic you would like to reset. If executed on the Primary FCS, specify an asterisk (*) to represent all security policies. Valid values for this operand are:

- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- DCC_POLICY
- LOGIN
- INVALID_TS
- INVALID_SIGN
- INVALID_CERT
- SLAP FAIL
- SLAP_BAD_PKT
- TS_OUT_SYNC
- NO_FCS
- INCOMP_DB
- ILLEGAL_CMD

The specified policy name must be all capitalized.

To access DCC policies, enter DCC_POLICY. Violations are not tracked for individual DCC policies. The statistics for all DCC_POLICY violations are grouped together.

This operand is optional and the default is all statistics. If the `list` operand is specified, then this operand is required.

list

Specify a list of domains to reset the security statistics on. Specify an asterisk (*) to represent all switches in the fabric or, specify a list of domains separated by semicolons. This operand is optional and the default value is the local switch.

Example

Reset all statistics on the local switch:

```
primaryfcs:admin> secstatsreset
About to reset all security counters.
Are you sure (yes, y, no, n):[no] y
Security statistics reset to zero.
primaryfcs:admin>
```

Reset DCC_POLICY statistics on domains 1 and 69:

```
primaryfcs:admin> secstatsreset "DCC_POLICY", "1;69"
Reset DCC_POLICY statistic.
primaryfcs:admin>
```

See Also

secfabricshow

secstatsshow

secstatsshow

Displays security statistic for a policy or for all policies.

Synopsis

`secstatsshow` *`[name][, list]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to display security statistics for one or all security policies. This command can be issued to any switch. If issued on the Primary FCS switch, this command can retrieve and display the security statistics for any or all switches in the fabric.

This command can be issued to any switch.

Operands

This command has the following operands:

name

Specify the name of a security statistic you would like to view. If executed on the Primary FCS, specify an asterisk (*) to represent all security policies. Valid values for this operand are:

- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- DCC_POLICY
- LOGIN
- INVALID_TS
- INVALID_SIGN
- INVALID_CERT
- SLAP FAIL
- SLAP_BAD_PKT
- TS_OUT_SYNC
- NO_FCS
- INCOMP_DB
- ILLEGAL_CMD

The specified policy name must be all capitalized.

To access DCC policies, enter DCC_POLICY. Violations are not tracked for individual DCC policies. The statistics for all DCC_POLICY violations are grouped together.

This operand is optional and the default is all statistics. If the `list` operand is specified, then this operand is required.

list

Specify a list of domains to reset the security statistics on. Specify an asterisk (*) to represent all switches in the fabric or, specify a list of domains separated by semicolons. This operand is optional and the default value is the local switch.

Example

Show MS_POLICY statistics on the local switch:

```
primaryfcs:admin> secstatsshow "MS_POLICY"
Name Value
====================
MS 20
primaryfcs:admin>
```

Displays statistic information for the "TELNET_POLICY" for all switches in the fabric:

```
primaryfcs:admin> secstatsshow "TELNET_POLICY", "*"

Fabric Statistics:

Domain 1:
Name               Value
=======================================

TELNET_POLICY      0

Domain 69:
Name               Value
=======================================

TELNET_POLICY      0

Domain 70:
Name               Value
=======================================

TELNET_POLICY      0

primaryfcs:admin>
```

See Also

secfabricshow

secstatsreset

sectemppasswdreset

Reset a password on a remote switch.

Synopsis

`sectemppasswdreset` *`[domain[, login_name]]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command allows the user to remove temporary passwords that had been set up using `sectemppasswdset` command. The password is restored to the default password set up on non-FCS switches.

If a login name is not supplied, all passwords on the switch identified by the specified Domain are refreshed. If the Domain is also not supplied, all temporary passwords for all login levels are removed from every switch in the fabric.

Each switch has four accounts, Root, Factory, Admin and User. Root and Factory accounts are disabled for non-FCS switches. If they are temporarily activated by `sectemppasswdset`, those accounts are disabled by `sectemppasswdreset` or rebooting the switch.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

domain	Specify the Domain of the switch from which the temporary passwords are to be removed. This operand is optional.
login_name	Specify the name of the login account from which the temporary password are removed. This operand is optional.

Example

To remove temporary passwords:

```
primaryfcs:admin> sectemppasswdreset 2, "root"
Account root has been successfully disabled on domain 2

primaryfcs:admin> sectemppasswdreset 2
Restoring password of every account on domain 2
Temporary password of each account on domain 2 has been successfully reset
(if switch is non fcs switch it will further display).
Root and factory accounts on domain 2 have been disabled.

primaryfcs:admin> sectemppasswdreset
All temporary passwords or account settings have been restored to
fabric-wide secure settings.
Passwords of permanent accounts have been reset to fabric-wide
values. Root and factory accounts on each Non FCS switch have
been disabled.
```

See Also

secmodeenable

secmodeshow

secnonfcspasswd

secswitchpasswd

sectemppasswdset

Set a temporary password on a remote switch.

Synopsis

`sectemppasswdset` *`domain, login_name`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set a unique temporary password for a given account on a specific switch in the fabric. Use the `sectemppasswdreset` command to remove the temporary password or reboot the switch.

You can change any password on any switch. In order to the change the password of an account which has higher level than that of the current user logged into the primary FCS switch, you must enter the password of the same level account on the primary FCS switch.

The password setup on the target is not persistent and will be reset to the secure fabric-wide setting when this target switch is rebooted or when `sectemppasswdreset` is run on primary FCS switch.

Each switch has four accounts; Root, Factory, Admin and User. Root and Factory accounts are disabled for non-FCS switches. This command can enable the Root or Factory account on a non-FCS switch when you specify a password for those accounts.

The password should be at least 8 characters long and no more than 40 characters.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operands:

domain	Specify the Domain of a switch where you want to change the password. This operand is required.
login_name	Specify the login name where you want to change the password. This operand is required.

Example

To set the password on a remote switch with a Domain of 2:

```
primaryfcs:admin> sectemppasswdset 2, "root"
Please provide password of root on primary FCS switch
in order to change this password: ********
Set remote switch root password: ********
Re-enter new password: ********
Account root has been successfully enabled on domain 2
```

See Also

passwd

secmodedisable

secmodeenable

secmodeshow

secnonfcspasswd

sectemppasswdreset

sectransabort

Abort current security transaction.

Synopsis

```
sectransabort
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to abort the current transaction. This command is used to recover from management application problems. This command will abort all current changes that have not been committed or activated.

Note: This command can be issued from any switch in the fabric.
When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To abort the current security transaction:

```
primaryfcs:admin> sectransabort
Transaction has been aborted.
primaryfcs:admin>
```

See Also

secpolicyabort
secpolicyactivate
secpolicyadd
secpolicycreate
secpolicydelete
secpolicydump
secpolicyremove
secpolicysave
secpolicyshow

secversionreset

Reset the version stamp to zero.

Synopsis

```
secversionreset
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to reset the version stamp of all switches in a fabric to zero, so that it can be joined to the another secure fabric.

When merging two or more secure fabrics, the following steps should be taken:

1. Determine which secure fabric will become the FCS_POLICY controller fabric, that is the dominant fabric to which all other secure fabrics will be merged.
2. Use the `secpolicyadd`, `secpolicyremove`, and `secpolicyactivate` commands to modify the FCS_POLICY of the merging fabrics to match the FCS_POLICY of the controller fabric. All secure fabrics to be merged must have identical FCS_POLICY lists. The FCS policies of merged fabrics must match exactly, that is, they must contain the same FCS members and in the same order, or the merge will fail.
3. Reset the version stamp using the `secversionreset` command on each secure fabric to be merged into the controller fabric. The controller fabric does not require a version reset.
4. Cascade the fabrics together. When the secure fabrics are merged, the primary FCS switch in the controller fabric will propagate its security policies across the newly formed fabric.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To reset the version stamp to zero:

```
primaryfcs:admin> secversionreset
About to reset version stamp to 0.
Are you sure (yes, y, no, n):[no] y
Committing configuration... done.
Security Policy Version Stamp has been set to 0.
primaryfcs:admin>
```

See Also

secfabricshow

secmodedisable

secmodeenable

secmodeshow

sectransabort

sensorShow

Displays sensor readings.

Synopsis

```
sensorShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the current temperature, fan and power supply status, and readings from sensors located on the switch. The actual location of the sensors varies depending on the switch type.

Using V4.1.x with the StorageWorks Core switch, the information returned with `sensorShow` is specific to the logical switch you are logged into:

- If you are logged into Logical switch 0, sensors 1 through 4 are for switch blade slots 1 through 4, respectively. Sensors 5 and 6 are for the two CPs in slots 5 and 6, respectively.
- If you are logged into Logical switch 1, sensors 1 and 2 are for the two CPs in slots 5 and 6, respectively. Sensors 3 through 6 are for switch blade slots 7 through 10, respectively.
- If you are logged into the Active CP through the console port, you are prompted to specify the logical switch this command is executed on. If you log in to the Active CP through the Fabric OS shell, this command always executes on the default switch (logical switch 0).
- Regardless of logical switch, sensors 7 through 9 are for the three chassis fans, left to right, and sensors 10 through 13 are for the four chassis power supplies, bottom to top.

Operands

None.

Example

Below is an example of the output of this command (V3.1.x example):

```
switch30:admin> sensorshow
sensor  1: type 1 (Temp #1) is OK, value is 32
sensor  2: type 1 (Temp #2) is OK, value is 31
sensor  3: type 1 (Temp #3) is OK, value is 30
sensor  4: type 1 (Temp #4) is absent, value is unknown
sensor  5: type 1 (Temp #5) is absent, value is unknown
sensor  6: type 2 (Fan #1) is OK, value is 5820
sensor  7: type 2 (Fan #2) is OK, value is 5940
sensor  8: type 2 (Fan #3) is OK, value is 5910
sensor  9: type 2 (Fan #4) is OK, value is 5970
sensor 10: type 2 (Fan #5) is OK, value is 6030
sensor 11: type 2 (Fan #6) is absent, value is unknown
sensor 12: type 3 (Power Supply #1) is absent, value is unknown
sensor 13: type 3 (Power Supply #2) is absent, value is unknown
switch30:admin>
```

To view the sensor values in a StorageWorks Core switch (V4.1.x example):

```
switch:admin> sensorshow
sensor  1: (Temperature) is Ok, value is 39 C
sensor  2: (Temperature) is Absent
sensor  3: (Temperature) is Absent
sensor  4: (Temperature) is Absent
sensor  5: (Temperature) is Ok, value is 26 C
sensor  6: (Temperature) is Ok, value is 27 C
sensor  7: (Fan         ) is Ok, speed is 2537 RPM
sensor  8: (Fan         ) is Ok, speed is 2537 RPM
sensor  9: (Fan         ) is Ok, speed is 2556 RPM
sensor 10: (Power Supply ) is Ok
sensor 11: (Power Supply ) is Absent
sensor 12: (Power Supply ) is Ok
sensor 13: (Power Supply ) is Absent
switch:admin>
```

See Also

fanShow

tempShow

setdbg

Set debug level of the specified module.

Synopsis

`setdbg` *`module_name level`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set the debug level of a specified module.

Operands

This command has the following operands:

`module_name`	Specify the name of the module where you want to view the debug and verbosity levels. Module names are case sensitive. This operand is optional.
`level`	Specify the debug level for the specified module. This operand is required.

Example

The following example shows how set debug level of module named NS to value 3:

```
switch:admin> setdbg NS 3
```

See Also

dbgshow

setesdmode

Enable or disable ESD mode.

Synopsis

`setesdmode` *[mode | -show]*

Availability

Admin

Release

V4.1.x

Description

Use this command to enable or disable ESD mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of `setesdmode`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

ESD mode, when enabled, modifies the behavior of the diagnostic test methods and post scripts. The exact behavior varies but most commonly consists of disabling the ports defined with `diagsetports` when `spinsilk` or other functional tests are run for ESD or EMI testing purposes.

Operands

This command has the following operands:

mode	Specify 1 to enable ESD mode, specify 0 to disable ESD mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To set ESD mode:

```
switch:admin> setesdmode
Esd Mode is 0 (Disabled).
switch:admin> setesdmode 1
Config update Succeeded
Esd Mode is now 1 (Enabled).
switch:admin>
```

See Also

spinsilk

setgbicmode

Enable or disable GBIC mode.

Synopsis: V3.1.x

`setgbicmode` *[mode]*

Synopsis: V4.1.x

`setgbicmode` *[mode | -show]*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable or disable the GBIC mode. If the mode operand is 1, GBIC mode is enabled; if the mode operand is 0, GBIC mode is disabled. The mode is saved in non-volatile memory and the GBIC remains in that mode until the next execution of `setgbicmode`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The GBIC mode, when enabled, forces `crossPortTest` and `spinSilk` to limit testing to ports with GBICs present. Consequently, testing is limited to those ports with a suspected problem.

Note: The current technology in the StorageWorks Core switch and StorageWorks 2 Gb SAN switch use SFPs instead of GBICs. This command is now replaced by the `setsfpmode` command. The command is included in the current Fabric OS for backward compatibility of scripts used by some customers.

Operands

This command has the following operands:

mode	Specify 1 to enable GBIC mode or 0 to disable GBIC mode. For V4.1.x, if no mode is specified the current value is displayed. The mode is saved in non-volatile memory and remains unchanged until the next execution of the `setgbicmode` command. This operand is optional.
-show (V4.1.x only)	Specify the `-show` operand to display the current setting. This operand is optional.

Example

To enable or disable GBIC mode (V3.1.x example):

```
switch:admin> setgbicmode 1
Committing configuration...done.
GBIC mode is now ON.
switch:admin> setgbicmode 0
Committing configuration...done.
GBIC mode is now OFF.
switch:admin>
```

To enable or disable GBIC mode (V4.1.x example):

```
switch:admin> setgbicmode 1
GBIC mode is now 1 (Enabled).
switch:admin> setgbicmode 0
GBIC mode is now 0 (disabled).
switch:admin> setgbicmode -show
GBIC mode is now 0 (disabled).
```

See Also

crossPortTest

spinSilk

setsfpmode

Enable or disable SFP mode.

Synopsis

`setsfpmode` *[mode | -show]*

Availability

Admin

Release

V4.1.x

Description

Use this command to enable or disable the SFP mode. If the mode operand is 1, SFP mode is enabled; if the mode operand is 0, SFP mode is disabled. The mode is saved in non-volatile memory and the SFP remains in that mode until the next execution of `setsfpmode`.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The SFP mode, when enabled, forces `crossPortTest` and `spinSilk` to limit testing to ports with SFPs present. Consequently, testing is limited to those ports with a suspected problem.

Operands

This command has the following operands:

mode	Specify 1 to enable SFP mode or 0 to disable SFP mode. If no mode is specified the current value is displayed. The mode is saved in non-volatile memory and remains unchanged until the next execution of the `setsfpmode` command. This operand is optional.
-show	Specify the `-show` operand to display the current setting. This operand is optional.

Example

To enable or disable SFP mode:

```
switch:admin> setSFPMode 1
SFP mode is now 1 (Enabled).
switch:admin> setSFPMode 0
SFP mode is now 0 (disabled).
switch:admin> setSFPMode -show
SFP mode is now 0 (disabled).
```

See Also

crossPortTest

spinSilk

setSplbMode

Enable or disable two port loopback.

Synopsis: V3.1.x

`setSplbMode` *[mode]*

Synopsis: V4.1.x

`setSplbMode` *[mode | -show]*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable or disable SPLB mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of `setSplbMode`. The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The SPLB mode, when enabled, forces the `spinSilk` command to disable two port loopback for `M->M` connected ports. This may be useful to isolate internal switch problems from SFP problems since the internal paths are used much less with SPLB mode enabled.

The SPLB mode, when disabled, forces the `spinSilk` command to circulate frames between pairs of `M->M` connected ports as follows:

```
P1 TX >>> P1 RX -> P2 TX >>> P2 RX -> P1 TX
```

where:

`>>>` is a cable or internal loopback

`->` is a routing table entry

The connections between pairs of `M->M` ports will be chosen to exercise the connections between as many chips (or bloom quadrants) as possible subject to the setting of allow_intra_chip and the availability of pairs of `M->M` ports.

Any ports that are cross-cabled will be routed to each other in the normal manner regardless of the setting of SPLB mode:

P1 TX >>> P2 RX -> P1 TX

P2 TX >>> P1 RX -> P2 TX

Operands

This command has the following operands:

`mode`	Specify 1 to enable SPLB mode or 0 to disable SPLB mode. For V3.1.x, the default (if no operand specified) is 0, SPLB disabled. For V4.1.x, if no mode is specified the current value is displayed. This operand is optional.
`-show` (V4.1.x only)	Specify the `-show` operand to display the current setting. This operand is optional.

Example

To enable or disable a two port loopback:

```
switch:admin> setsplbmode 1
Committing configuration...done.
SPLB mode is now ON.
switch:admin> setsplbmode 0
Committing configuration...done.
SPLB mode is now OFF.
switch:admin>
```

See Also

setgbicmode

setSfpMode

spinSilk

setverbose

Set verbose level of the module to specified level.

Synopsis

`setverbose` *`module_name, level`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set the verbose level of the specified module.

Operands

This command has the following operands:

`module_name`	Specify the name of the module for which verbose level is to be set.
`-level`	Specify the verbose level to be set for the specified module.

Example

The following example shows how to set the verbose level of module named NS to value 3:

```
switch:admin> setverbose NS 3
```

See Also

dbgshow

sfpShow

Displays serial ID SFP information.

Synopsis: V3.1.x

`sfpShow [portnumber]`

Synopsis: V4.1.x

`sfpShow [slotnumber/][portnumber]`

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display information about Serial Identification SFPs (also known as module definition "4" SFPs). These SFPs provide extended information that describes the SFPs capabilities, interfaces, manufacturer, and other information.

Note: SFPs are polled by a background process. The `sfpshow` command retrieves the latest information from cache. The cache values for each SFP are updated when the SFP is hot plugged, when it is removed, or when the Fabric OS polls the SFPs. In the StorageWorks Core switch, if there is a lot of activity on the switch, poll updates may take several minutes.

Use this command with no operand to display a summary of all SFPs in the switch. The summary shows the SFP type (see `switchShow` for an explanation of the two letter codes) and, for Serial ID SFP, the vendor name and SFP serial number.

Use this command with the *`slot`* and *`portnumber`* operand to display detailed information about the Serial ID SFP in that port.

For Finisar “smart” SFPs, five additional fields are displayed:

- **Module temperature**
- **Voltage**
- **Received optical power**
- **Transmitted optical power (longwave only)**
- **Laser diode drive current**

Operands

This command has the following operands:

slotnumber (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

Example

The example below shows SFP summary information:

```
switch:admin> sfpshow
port  0: id (sw) Vendor: AGILENT          Serial No: A00128928
port  1: id (sw) Vendor: AGILENT          Serial No: A00128983
port  2: id (sw) Vendor: AGILENT          Serial No: A00128966
port  3: id (sw) Vendor: AGILENT          Serial No: A00128929
port  4: id (sw) Vendor: AGILENT          Serial No: A00128988
port  5: id (sw) Vendor: AGILENT          Serial No: A00127279
port  6: id (sw) Vendor: AGILENT          Serial No: A00127399
port  7: id (sw) Vendor: AGILENT          Serial No: A00127264
switch:admin>
```

This example shows detailed SFP information for a StorageWorks Core switch:

```
switch:admin> sfpshow 1/3
Identifier:  3    SFP
Connector:   7    LC
Transceiver: 050c402000000000 100,200_MB/s M5,M6 sw Inter_dist
Encoding:    1    8B10B
Baud Rate:   21   (units 100 megabaud)
Length 9u:   0    (units 100 meters)
Length 50u:  30   (units 10 meters)
Length 625u: 13   (units 10 meters)
Length Cu:   0    (units 1 meter)
Vendor Name: FINISAR CORP.
Vendor OUI:  00:90:65
Vendor PN:   FTRJ-8519-3-2.5
Vendor Rev:  X1
Options:     0012 Loss_of_Sig,Tx_Disable
BR Max:      0
BR Min:      0
Serial No:   H112YFR
Date Code:   010418
switch:admin>
```

See Also

switchShow

slotOff

Disable a blade slot.

Synopsis

`slotOff` *`slot`*

Availability

Admin

Release

V4.1.x

Description

Use this command to disable a non-faulty blade unit while leaving the blade unit powered on.

Operands

This command has the following operand:

`slot`	Specify the physical slot number of the blade to be disabled. This operand is required.

Example

To power off blade unit 3:

```
switch:admin> slotOff 3
Slot 3 is being disabled.
```

See Also

slotOn

slotShow

slotOn

Enable a blade slot.

Synopsis

`slotOn` *`slot`*

Availability

Admin

Release

V4.1.x

Description

Use this command to re-enable a blade unit that was previously disabled.

Operands

This command has the following operand:

`slot`	Specify the physical slot number of the blade to be enabled. This operand is required.

Example

To power off blade unit 3:

```
switch:admin> sloton 3
Slot 3 is being enabled.
```

See Also

slotOff

slotShow

slotpoweroff

Power off a blade unit.

Synopsis

`slotPowerOff` *`slot`*

Availability

Admin

Release

V4.1.x

Description

Use this command to turn off the power to a blade unit. The slot must have a valid blade unit present and the blade unit must be of a type that can be powered off.

Operands

This command has the following operand:

`slot`	Specify the physical slot number of the blade to be powered down. This operand is required.

Example

To power off blade unit 3:

```
switch:admin> slotPowerOff 3
Slot 3 is being powered off
```

See Also

slotPowerOn

slotShow

slotpoweron

Power on a blade unit.

Synopsis

`slotPowerOn` *`slot`*

Availability

Admin

Release

V4.1.x

Description

Use this command to turn on the power to a blade unit. The slot must have a valid blade unit present and the blade unit must be currently powered off.

Operands

This command has the following operand:

`slot`	Specify the physical slot number of the blade to be powered on. This operand is required.

Example

To power on blade unit 3:

```
switch:admin> slotPowerOn 3
Powering on slot 3.
```

See Also

slotPowerOff

slotShow

slotShow

Displays slot status.

Synopsis

```
slotShow
```

Availability

All users.

Release

V4.1.x

Description

Use this command to inventory and display the current status of each slot in the system. The format of the display includes a header and four fields for each slot. This command is only supported on the StorageWorks Core switch. The fields and their possible values are as follows:

Slot	Displays the physical slot number.
Blade Type	Displays the blade type: SW BLADE—The blade is a switch. CP BLADE—The blade is a Control Processor. UNKNOWN—Blade not present or its type is not recognized.
ID	Displays the hardware ID of the blade type.
Status	Displays the status of the blade: VACANT The slot is empty. INSERTED, NOT POWERED ON The blade is present in the slot but is turned off. DIAG RUNNING POST1 The blade is present, powered on, and running the post initialization power on self tests. DIAG RUNNING POST2 The blade is present, powered on, and running the POST (power on self tests)

ENABLED
The blade is on and enabled.

DISABLED
The blade is powered on but disabled.

FAULTY
The blade is faulty because an error was detected.

UNKNOWN
The blade is inserted but its state cannot be determined.

Operands

None.

Example

To display a blade inventory and status:

```
switch:admin> slotShow
Slot   Blade Type   ID    Status
---------------------------------
1      SW BLADE     2     FAULTY
2      SW BLADE     2     DISABLED
3      SW BLADE     2     ENABLED
4      SW BLADE     2     DIAG RUNNING POST2
5      CP BLADE     1     ENABLED
6      CP BLADE     1     ENABLED
7      UNKNOWN            VACANT
8      SW BLADE     2     DIAG RUNNING POST1
9      SW BLADE     2     INSERTED, NOT POWERED ON
10     UNKNOWN            VACANT
```

See Also

chassisShow

slotOff

slotOn

slotPowerOff

slotPowerOn

snmpMibCapSet

View and modify options for configuring SNMP MIB trap capability.

Synopsis

```
snmpMibCapSet
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command enables a user to turn on or off certain MIBS and TRAPS. This command also enables a user to turn on or off group information and SSN in SW trap messages. It first displays current settings and then prompts the user to change the values for each parameter.

- FA-MIB - Specifying *yes* means the user can access FA-MIB variables with an SNMP manager. The default value is *yes*.
- HA-MIB - (V4.1.x only) Specifying *yes* means the user can access HA-MIB variables with an SNMP manager. The default value is *yes*.
- SW-TRAP - Specifying *yes* means the SNMP management application can receive SW-TRAPS from the switch. The default value is *yes*.
- FA-TRAP - Specifying *yes* means the SNMP management application can receive FA-TRAPS from the switch. The default value is *yes*.
- SW-EXTTRAP - (V4.1.x only) Specifying *yes* means the SNMP management application can receive SW-EXTTRAPS from the switch. The default value is *yes*.
- HA-TRAP - (V4.1.x only) Specifying *yes* means the SNMP management application can receive HA-TRAPS from the switch. The default value is *yes*.

Operands

None.

Example

To view or modify the options for configuring SNMP MIB traps (V3.1.x example):

```
switch:admin> snmpmibcapset
The SNMP Mib/Trap Capability has been set to support
FE-MIB SW-MIB FA-MIB SW-TRAP FA-TRAP
FA-MIB (yes, y, no, n): [yes]
SW-TRAP (yes, y, no, n): [yes]
FA-TRAP (yes, y, no, n): [yes]
no change
```

See Also

agtcfgDefault

agtcfgSet

agtcfgShow

spinFab

Test for Cascaded switch ISL links.

Synopsis: V3.1.x

```
spinFab [nMillionFrames [, ePortBeg[, ePortEnd[,
failmode]]]]
```

Synopsis: V4.1.x

```
spinfab [-nmegs count][-ports list][-setfail mode]
[-domain value]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Used to verify the intended functional operation of the ISL links between switches at the maximum speed of 2 Gbps by setting up the routing hardware such that test frames received by each E_Port are retransmitted on the same E_Port. Several frames are then sent to the neighbor port attached to each active E_Port specified. Since the default action for such frames (which never occur for normal traffic) is to route them back to the sender, the frames that are sent in this manner will circulate until the test stops them.

The following conditions must be met before `spinfab` can execute a successful run.

- Trunking license needs to be present for the switch.
- Ports must be configured into 4 port trunk groups. It is recommended that Port n of a local switch is connected to port n of a remote switch. Use the `switchshow` command to verify that there is only 1 trunk master per quad before `spinfab` is run.

The frames are continuously transmitted and received to all ports in parallel. The port LEDs flicker green rapidly while the test is running. While the frames are circulating, the RX frame count and port CRC and encoder error statistics are monitored and errors will be generated if a port stops or a low level error occurs. Every one million frames the circulating frames will be captured to verify that they are still circulating and that they are still in-order. In this manner the entire path to the remote switch may be verified.

Note: When trunk groups are present, then entire trunk group must be included in the range of ports to test or false failures may occur. If multiple ISL links are present between two switches that support trunking then it is likely that trunk groups are present and all ports between the two switches should be tested at the same time.

The switch will remain in normal operation while this test is running; however some performance degradation will occur due to the ISL links being saturated with test frames. Because of this you should use caution when running this test on live fabrics, consider only testing one ISL link at a time, and do not run the tests for extended periods of time.

This test is best combined with the online `crossPorttest` for ISL link failure isolation. If this test fails, replace the cable with a loopback plug and run `crossporttest` to verify the local switch and SFP. If these tests pass then the fault lies in the cable or remote switch/SFP.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

Note: When trunk groups are present, then entire trunk group must be included in the range of ports to test or false failures may occur. If multiple ISL links are present between two switches that support trunking then it is likely that trunk groups are present and all ports between the two switches should be tested at the same time.

Operands

This command has the following operands:

nMillionFrames (V3.1.x only)	Number of million frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value for nmill is 10, so the number of frames sent will be at least 10 million. The counting is not exact so the actual number of frames sent will tend to be slightly larger, particularly at 2-Gbps link speeds.
ePortBeg (V3.1.x only)	Specify the first port to test, if omitted 0 will be used. This operand is optional.
ePortEnd (V3.1.x only)	Specify the last port to test. The test will be performed on ePortBeg to ePortEnd inclusive. If ePortEnd is omitted then the default will be to test all ports. This operand is optional.
failmode (V3.1.x only)	This parameter may be used to cause `spinfab` to mark failing ports as bad like a normal diagnostic. 1 = Mark failing ports as BAD 0 = do not mark failed ports as bad. To minimize the impact on live fabrics this test normally logs errors, but does not set the port status to FAILED. This parameter is provided to force the failing ports to be marked as BAD, in the same manner as other diagnostics. In test or qualification environments without live traffic this may be useful with large values of nmil. This mode is disabled by default.
-nmegs count (V4.1.x only)	Specify the number of frames to send in millions. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10, that is, 10 million frames. This command only approximately counts the frames and the actual number of frames sent will be slightly larger, particularly at 2G link speeds.
-ports list (V4.1.x only)	Specify a list of user ports to test. By default all of the ISL ports in the current switch will be tested. This option may be used to restrict testing to the specified ports. This operand is optional. See the `itemlist` command for more information.

-setfail mode (V4.1.x only)	This parameter may be used to cause spinfab to mark failing ports as bad. Specify a value 1 to mark failing ports as BAD, specify a value of 0 to not mark failed ports as bad. To minimize the impact on live fabrics this test normally logs errors but does not set the port status to FAILED. This parameter is provided to force the failing ports to be marked as BAD in the same manner as other diagnostics. In test or qualification environments without live traffic this may be useful with large values of nmil. This mode is disabled by default.
-domain value (V4.1.x only)	The domain parameter is used to specify a specific remote domain that the switch is connected to. The default is to automatically determine the remote domain number. This operand is optional.

Example

In the following examples ports 0-3 are active ISL links. Port 4 is an F-Port so the test skips it (V3.1.x example):

```
switch:admin> setdbg "DIAG", 0
switch:admin> spinfab 3,0,4

spinFab running...

spinFab: Completed 3 megs, status:  passed.
        port 0 test status: 0x00000000 --  passed.
        port 1 test status: 0x00000000 --  passed.
        port 2 test status: 0x00000000 --  passed.
        port 3 test status: 0x00000000 --  passed.
        port 4 test status: 0x02000000 --  SKIPPED!

switch:admin> setdbg "DIAG", 2
switch:admin> spinfab 3,0,3

spinFab running...
port  1 Rx  1 million frames.
port  0 Rx  1 million frames.
port  2 Rx  1 million frames.
port  3 Rx  1 million frames.
port  1 Rx  2 million frames.
port  0 Rx  2 million frames.
port  2 Rx  2 million frames.
port  3 Rx  2 million frames.
port  1 Rx  3 million frames.
port  0 Rx  3 million frames.
port  2 Rx  3 million frames.
port  3 Rx  3 million frames.

spinFab: Completed 3 megs, status:  passed.
        port 0 test status: 0x00000000 --  passed.
        port 1 test status: 0x00000000 --  passed.
        port 2 test status: 0x00000000 --  passed.
        port 3 test status: 0x00000000 --  passed.

switch:admin>
```

To test cascading ISL links (V4.1.x example):

```
switch:admin> > spinfab -ports 1/0 - 1/2
spinfab running...
spinfab: Completed 11 megs, status:  passed.
port 0 test status: 0x00000000 --  passed.
port 1 test status: 0x00000000 --  passed.
port 2 test status: 0x00000000 --  passed.
Test Complete: "spinfab" Pass 10 of 10
Duration 0 hr, 0 min & 41 sec (0:0:41:877).
passed.
switch:admin>
```

Errors

When it detects failures, the test may report one or more of the following error messages:

- For V3.1.x:

  ```
  DIAG-INIT
  DIAG-PORTDIED
  DIAG-XMIT
  DIAG-PORTSTOPPED
  DIAG-ERRSTATS
  DIAG-ERRSTAT
  ```

- For V4.1.x:

  ```
  DATA
  ERR_STAT
  ERR_STATS
  ERR_STATS_2LONG
  ERR_STATS_BADEOF
  ERR_STATS_BADOS
  ERR_STATS_C3DISC
  ERR_STATS_CRC
  ERR_STATS_ENCIN
  ERR_STATS_ENCOUT
  ERR_STATS_TRUNC
  ERR_STAT_2LONG
  ERR_STAT_BADEOF
  ERR_STAT_BADOS
  ERR_STAT_C3DISC
  ERR_STAT_CRC
  ERR_STAT_ENCIN
  ERR_STAT_ENCOUT
  ERR_STAT_TRUNC
  FINISH_MSG_ERR
  INIT
  MBUF_STATE_ERR
  NO_SEGMENT
  PORT_ABSENT
  ```

```
PORT_DIED
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_RAM_PERR
STATS
STATS_C3FRX
STATS_FRX
STATS_FTX
TIMEOUT
XMIT
```

See Also

camtest

centralmemorytest

cmemretentiontest

cmitest

crossporttest

itemlist

portloopbacktest

setDbg

spinsilk

sramretentiontest

spinSilk

Functional test of port connection at maximum switch speed.

Synopsis: V3.1.x

`spinSilk` *`[nmillionframes[, sfpmode[, lbmode[, spdmode]]]]`*

Synopsis: V4.1.x

`spinSilk` *`[-nmegs count][-gbic_mode mode][-lb_mode mode] [-spd_mode mode][-verbose mode][-ports itemlist]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command verifies the functional operation of the switch by setting up the routing hardware such that frames received by port M are retransmitted through port N. Likewise frames received by port N are retransmitted through port M. Each port M sends 1 frame to its partner port N through an external fiber cable, exercising all the switch components.

Note: The `spinsilk` command may not be executed on an operational switch. You must first disable the switch using the `switchDisable` command.

The cables can be connected to any port combination with the condition that the cables and SFPs connected are of the same technology. For example, a short wavelength SFP port must be connected to another short wavelength SFP port through a short wavelength cable; or a long wavelength port must be connected to another long wavelength port.

Optimum test coverage occurs with lbmode 1, `M->M` loopback plugs and `splbMode` disabled. In this case every port will exchange frames with every other port and all of the ASIC to ASIC connections are tested.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

The test method is as follows:

1. Determine which ports are connected to each other.
2. Enable ports for cabled loopback mode.
3. Set up the routing table such that when port M receives frames, they are routed to its partner port N; and vice versa.
4. Transmit 4 frames of various lengths via port M. The 4 frames used are as follows:
   a. 2112 bytes of BYTE_LFSR,
   b. 1000 bytes of CSPAT,
   c. 128 bytes of RANDOM, and
   d. 512 bytes of RDRAM_PAT.

   The partner port N eventually sends 4 similar frames as follows:
   a. 2112 bytes of BYTE_LFSR,
   b. 928 bytes of CSPAT,
   c. 200 bytes of RANDOM, and
   d. 480 bytes of RDRAM_PAT.
5. Periodically check that each port has not died, each port's frames transmitted counter is still incrementing, each port's statistic error counters are non-zero:

   ```
   ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out,
   BadOrdSet, DiscC3
   ```

   until one of the following is met:
   a. The number of million frames requested per port are met,
   b. All ports are eventually marked bad,
   c. The user sends a keyboard (or push button) interrupt to abort.

The data is not read and checked as is done in `portloopbacktest` and `crossporttest`. There is no CPU intervention beyond the periodic checks of the hardware counters.

An example of the data used are as follows:

```
CSPAT:       0x7e, 0x7e, 0x7e, 0x7e, ...
BYTE_LFSR:   0x69, 0x01, 0x02, 0x05, ...
RANDOM:      0x25, 0x7f, 0x6e, 0x9a, ...
RDRAM_PAT:   0xff, 0x00, 0xff, 0x00, ...
```

At each pass, the frame is created from a different data type. There are seven data types:

```
1)   CSPAT:       0x7e, 0x7e, 0x7e, 0x7e,...
2)   BYTE_LFSR:   0x69, 0x01, 0x02, 0x05,...
3)   CHALF_SQ:    0x4a, 0x4a, 0x4a, 0x4a,...
4)   QUAD_NOT:    0x00, 0xff, 0x00, 0xff,...
5)   CQTR_SQ:     0x78, 0x78, 0x78, 0x78,...
6)   CRPAT:       0xbc, 0xbc, 0x23, 0x47,...
7)   RANDOM:      0x25, 0x7f, 0x6e, 0x9a,...
```

If seven passes are requested, the seven different data types are used in the test. If eight passes are requested, the first seven frames use unique data types, and the eighth is the same as the first.

`spinSilk` Modes

These are the test modes. These modes can be used together to test specific ports.

- Loopback mode
- SFP mode

LoopBack Mode (lbmode)

There are four loopback modes that can be used when executing the `spinSilk` command. The modes are specified by entering:

- 0 for cable mode. This loopback mode is the default mode and tests only `M->N` connections. It requires that the user connect a cable from one port to a different port.
- 1 for single port also loopback mode. This lb_mode tests `M->N` and `M->M` connections.

  If `M->N` cable connections are used, the `spinsilk` command operates identically in lb_mode 0 and lb_mode 1.

  If `M->M` loopback plugs are used with SPLB mode disabled, the `spinsilk` command will circulate frames between pairs of `M->M` connected ports as follows:

  ```
  P1 TX >>> P1 RX -> P2 TX >>> P2 RX -> P1 TX
  ```

where:

`>>>` is a cable or internal loopback

`->` is a routing table entry

The connections between pairs of `M->M` ports are chosen to exercise the connections between as many ASICs as possible subject to the availability of pairs of `M->M` ports.

In mode `1` with SPLB mode disabled the `spinsilk` command only circulates frames within each single port and none of the ASIC to ASIC connections are tested. This mode should only be used for fault isolation.

- 2 for external loopback mode. The external loopback test creates a test loop between two ports on different ASICs and also tests the Serializer Deserializer functionality.
- 5 for internal loopback mode. The internal loopback test creates a test loop between two ports on a single ASIC.

See the `setSplbmode` command for more information on how the loopback mode setting changes the execution of this command.

GBIC/SFP Mode (sfpmode): V3.1.x

If the `spinSilk` command is executed with SFP mode activated, only ports containing SFPs are tested. To activate SFP mode, execute the following command prior to executing the `spinSilk` command:

```
switch:admin> setgbicmode 1
```

The state of the SFP mode is saved in non-volatile memory and remains active over a reboot until it is disabled as follows:

```
switch:admin> setgbicmode 0
```

An example mode of operation would be to disable the switch, set the SFP mode to 1, and execute `spinsilk` which would limit its testing to ports which are using SFPs, and all SFP ports that are properly cable loopbacked.

Because this test includes the SFPs and the fiber cable in its test path, use the results from this test in conjunction with the results of the `portloopbacktest` can be used to determine those switch components that are not functioning properly.

GBIC/SFP Mode (sfpmode): V4.1.x

If the `spinSilk` command is executed with GBIC mode activated, only ports containing GBICs are tested. To activate GBIC mode, execute the following command prior to executing the `spinSilk` command:

```
switch:admin> setsfpmode 1
```

The state of the SFP mode is saved in non-volatile memory and remains active over a reboot until it is disabled as follows:

```
switch:admin> setsfpmode 0
```

Prior to running this command make sure you disable the switch, set the GBIC mode to 1, and install loopback cables on all GBIC ports you want to test.

Because this test includes the GBICs and the fiber cable in its test path, use the results from this test in conjunction with the results from `crossporttest` and `portloopbacktest` can be used to determine those switch components that are not functioning properly.

Operands

This command has the following operands:

nmillionframes (V3.1.x only)	Specify a number of times, representing a million frames per port, to execute this test. If omitted, the default value used is 0xfffffffe (or almost infinite for practical purposes) as `passcount`.
sfpmode (V3.1.x only)	Specify 1 to enable SFP mode for the test. The SFP mode parameter may be used to override the global SFP mode setting for the duration of this test. When it is enabled, testing is limited to user ports with SFPs installed.
lbmode (V3.1.x only)	Specify the loopback mode for the test. Valid values are: 0 cabled loopback Port M<->N only (default) 1 cabled loopback Port M->M & M<->N allowed 3 external silkscreen loopback (no retry) Any other value selects internal loopback.
spdmode (V3.1.x only)	Specify the speed at which the test is run: 0 set port speed for auto-negotiate. 1 set port speed to lock at 1 Gbit/sec. 2 set port speed to lock at 2 Gbit/sec.

-nmegs count
(V4.1.x only)

Specify the number of million frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value for nmill is 10, so the number of frames sent will be at least 10 million.

-gbic_mode mode
(V4.1.x only)

Specify the GBIC mode for the test. The *-gbic_mode* parameter may be used to override the global GBIC mode described above for the duration of this test. When it is enabled (1) testing is limited to user ports with GBICs or SFPs installed.

-lb_mode mode
(V4.1.x only)

Specify the loopback point for the test. By default, `spinsilk` uses loopback plugs as described above. However for debug purposes you can select other loopback modes as follows:

0: Cable Loopback.

1: Port Loopback (loopback plugs).

2: External (SERDES) loopback.

3: Silkscreen loopback.

4: Serial link wrapback.

5: Internal (parallel) loopback.

-spd_mode mode
(V4.1.x only)

Specify the speed mode for the test. For 1 Gbit/sec only products it is ignored. The exact operation of modes 3 through 6 depends upon the loopback mode selected. When speed modes 3 through 6 are used with cables, they must be connected EVEN to ODD or the test will fail.

- 0: set all ports' speed for auto-negotiate.
- 1: set all ports' speed to lock at 1 Gbit/sec.
- 2: set all port's speed to lock at 2 Gbit/sec.

For *lb_Mode* == 0,1 the following speed modes are available to test the speed negotiation:

- 3: set all even ports' speed for auto-negotiate, set all odd ports' speed for 1 Gbit/sec.
- 4: set all even ports' speed for auto-negotiate, set all odd ports' speed for 2 Gbit/sec.
- 5: set all odd ports' speed for auto-negotiate, set all even ports' speed for 1 Gbit/sec.
- 6: set all odd ports' speed for auto-negotiate, set all even ports' speed for 2 Gbit/sec.

	For *lb_Mode* == 2,3 the following speed modes are available to test fifo underrun. 3,5: set all even ports' speed for 2 Gbit/sec, set all odd ports' speed for 1 Gbit/sec. 4,6: set all even ports' speed for 1 Gbit/sec, set all odd ports' speed for 2 Gbit/sec.
-verbose mode (V4.1.x only)	Specify a non-zero value, to display more detailed information during the test. This mode should be used for debugging purpose. This operand is optional.
-ports itemlist (V4.1.x only)	Specify a list of user ports to test. By default all of the user ports in the current switch are tested. This option may be used to restrict testing to the specified ports.

Example

To run `spinsilk` on a switch:

```
switch:admin> spinsilk 2

Running Spin Silk .............

One moment please ...
switchName:     switch
switchType:     2.2
switchState:    Testing
switchRole:     Disabled
switchDomain:   1 (unconfirmed)
switchId:       fffc01
switchWwn:      10:00:00:60:69:00:73:71
port  0: cu  Testing    Loopback->15
port  1: sw  Testing    Loopback->11
port  2: sw  Testing    Loopback->6
port  3: lw  Testing    Loopback->4
.
.
.
Transmitting ... done.
Spinning ...
port  0 Rx/Tx 1 of 1 million frames.
port  1 Rx/Tx 1 of 1 million frames.
port  2 Rx/Tx 1 of 1 million frames.
port  3 Rx/Tx 1 of 1 million frames.
.
.
.
```

Errors

Below are the possible error messages if failures are detected:

- For V3.1.x:

```
DIAG-INIT
DIAG-PORTDIED
DIAG-XMIT
DIAG-PORTSTOPPED
DIAG-ERRSTAT
DIAG-ERRSTATS
```

- For V4.1.x:

```
DATA
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
FTPRT_STATUS_ERR
INIT
LESSN_STATUS_ERR
MBUF_STATE_ERR
MBUF_STATUS_ERRBAR>
NO_SEGMENT
PORT_ABSENT
PORT_DIED
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_FRAME_ERR
RXQ_RAM_PERR
STATS
STATS_C3FRX
STATS_FRX
STATS_FTX
```

```
TIMEOUT
XMIT
```

See Also

backport

camtest

centralmemorytest

cmemretentiontest

cmitest

crossporttest

itemlist

portloopbacktest

portregtest

ramtest

sramretentiontest

statstest

sramRetentionTest

Data retention test of the miscellaneous SRAMs in ASIC.

Synopsis: V3.1.x

`sramRetentionTest` *`[passCount]`*

Synopsis: V4.1.x

`sramRetentionTest` *`[--slot number][-passcnt count] [-ports itemlist][-skip bitmask][-delay value]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to verify that data written into the miscellaneous SRAMs in the ASIC are retained after a 10 second wait. The test method is to write a fill pattern to all SRAMs, wait 10 seconds, and then read all SRAMs checking that data read matches data previously written. Then the test is repeated using the complementary version of the pattern. For V4.1.x, the test will use four QUAD_FILL patterns and one QUAD_RAMP pattern with random seed.

The following patterns are used:

`0xffffffff` (and `0x00000000`)
`0x55555555` (and `0xaaaaaaaa`)
`0x33333333` (and `0xcccccccc`)
`0x0f0f0f0f` (and `0xf0f0f0f0`)
`QUAD_RAMP` with a random seed value (and its invert) (V4.1.x only)

Note: The `sramRetentionTest` command may not be executed on an operational switch. You must first disable the switch using the `switchDisable` command.

For details about the patterns used in diagnostic tests, see the `datatypeshow` command.

Operands

This command has the following operand:

passCount (V3.1.x only)	Specify the number of times to execute the test. The default value is 1. This operand is optional.
--slot number (V4.1.x only)	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed port count products.
-passcnt count (V4.1.x only)	Specify the number of times to execute this test. The default value is 1. *<q>* to stop
-ports itemlist (V4.1.x only)	Specify a list of blade ports to test. By default all the blade ports in the specified slot will be used. See `itemlist` for more details.
-skip bitmask (V4.1.x only)	Specify a patterns to skip in the test. This command will use the data patterns described above by default. Using this option, the user can intentionally skip one or more pattern(s) if needed.
-delay value (V4.1.x only)	Specify the delay between the read and write in seconds. The default value is 10, which is 10 seconds.

Example

To run a data retention test:

```
switch:admin> sramRetentionTest
Running SRAM Retention Test ... passed.
```

Errors

Below are the possible error messages if failures are detected:

- For V3.1.x:

  ```
  DIAG-REGERR
  DIAG-REGERR_UNRST
  DIAG-BUS_TIMEOUT
  ```

- For V4.1.x:

```
BUS_TIMEOUT
REGERR
REGERR_UNRST
```

See Also

camtest

centralmemorytest

cmemretentiontest

cmitest

crossporttest

filterTest

portloopbacktest

portRegTest

ramtest

spinsilk

snn

Displays and sets the soft serial number.

Synopsis

`ssn ["soft-serial-number"]`

Availability

Admin

Release

V3.1.x

Description

Use this command to display or set the soft serial number. When `ssn` is entered without any operand, this command displays the current soft serial number. When `ssn` is entered with the operand specified, it sets the soft serial number to a user specified value, which can be a numeric value from 1 to 122 bytes.

Operands

This command has the following operand:

soft-serial-number	Specify the soft serial number between 1 and 122 characters in length. This operand is optional.

Example

The following example displays the current soft serial number:

```
switch:admin> ssn
10:00:00:60:69:50:02:7b
```

The following example sets the soft serial number:

```
switch:admin> ssn "BRCD_101"
Committing configuration...done.
switch:admin> ssn
BRCD_101
```

See Also

None.

statsTest

Run a statistics counter diagnostic test.

Synopsis V3.1.x

```
statsTest [passcount]
```

Synopsis V4.1.x

```
statsTest [-passcnt count][-ports itemlist]
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to verify the ASIC statistics counter logic. It can run on every base port of quadrant, and send the frame through internal loopback with no CRC data to induce the CRC error. This command is also called from `camtest`.

This test covers the following statistics counter functionality.

1. The number of received frames with the CRC error that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0-15), respectively.
2. The number of received words in frames that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0-15), respectively.
3. The number of transmitted words in frames that matched the SID-DID pair specified in the LINK table. There are a total of 16 of these statistics counters (0-15), respectively.
4. The number of frames with the CRC error that matched the corresponding ALI (0-127), respectively.

This command may not be executed on an operational switch. You must first disable the switch using the `switchDisable` command.

Note: There is a LINK table that stores 16 pairs of SID-DID address. Each of the SID-DID pairs is named a LINK. This table is used for gathering statistics that match the LINK.

Operands

This command has the following operands:

passcount (V3.1.x only)	Specify the number of times to perform this test. The default value is 1. This operand is optional.
-passcnt count (V4.1.x only)	
-ports itemlist (V4.1.x only)	Specify a list of user ports to run the test. If omitted, all the user ports in the switch will be assumed. See `itemlist` for more information about selecting ports. This operand is optional.

Example

To run a statistics counter test on a switch (V3.1.x example):

```
switch:admin> statsTest

Running Statistics Cnt Test ... passed.
switch:admin>
```

To run a statistics counter test on a switch (V4.1.x example):

```
switch:admin> statstest -passcnt 1 -ports 1/0-15
Running Statistics Counter Test ....... passed.
switch:admin>
```

Errors: V4.1.x

When it detects failure(s), the subtest may report one or more of the following error messages:

```
DIAG-STSINIT
DIAG-STSNULL
DIAG-STSSID
DIAG-STSXMIT
DIAG-STSRCV
DIAG-STSFRMCNT
```

```
DIAG-STSWRDCNT
DIAG-STSALPACNT
```

See Also

camtest

centralmemorytest

cmemretentiontest

cmitest

crossporttest

filtertest

portloopbacktest

portregtest

ramtest

spinsilk

sramretentiontest

turboramtest

stopporttest

Terminate the running `porttest`.

Synopsis: V3.1.x

`stopporttest` *`[ports]`*

Synopsis: V4.1.x

`stopporttest` *`[-ports itemlist]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to stop the currently running `porttest` command. See `porttest` command for more information. If `porttest` is running on a non-singlemode, use `stopporttest` to stop the test.

Operands

This command has the following operands:

`ports` (V3.1.x only)	Specify the port to stop the test on. If omitted, the test will be executed on all possible ports. Default value is -1 stop the test on all ports. Valid values are: -1 Stop the test on all ports. This operand is optional.
`-ports itemlist` (V4.1.x only)	Specify a list of user ports to test. By default all the user ports in the current slot will be assumed. See `itemlist` help pages for further details.

Example

To stop the `porttest` on an active switch:

```
switch:admin> stopporttest
switch:admin>
```

See Also

crossporttest

fporttest

loopporttest

portloopbacktest

porttest

porttestshow

spinfab

supportShow

Print switch information for debugging purposes.

Synopsis: V3.1.x

`supportShow` *`[firstPort, lastPort, nLog]`*

Synopsis: V4.1.x

`supportShow` *`slotnumber[/port1-port2] [lines]`*

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to print the switch information for debugging purposes.

Note: The output of this command can be very long.

This command executes the listed commands in the following order:

1. `fabstateshow` (V4.1.x only)
2. `fabswitchshow` (V4.1.x only)
3. `version`
4. `uptime`
5. `tempshow`
6. `psshow`
7. `licenseshow`
8. `diagshow` (V3.1.x only)

9. `errdump`
   Runs `errdump -a`, followed by `errdump -p`.
10. `switchshow`
11. `fspfshow` (V4.1.x only)
12. `portflagsshow`
13. `porterrshow`
14. `mqshow` (V3.1.x only)
15. `portsemshow` (V3.1.x only)
16. `portshow <each port>` (V3.1.x only)
17. `portregshow <each port>` (V3.1.x only)
18. `portrouteshow <each port>` (V3.1.x only)
19. `portstructshow <each port>` (V3.1.x only)
20. `bloomdatashow <each port>` (V3.1.x only)
21. `fabricshow`
22. `trunkshow`
23. `topologyshow`
24. `qlshow` (V3.1.x only)
25. `fashow` (V3.1.x only)
26. `portcfglport` (V3.1.x only)
27. `nsshow`
28. `nsallshow`
29. `nscamshow` (V3.1.x only)
30. `cfgshow`
31. `slotshow` (V4.1.x only)
32. `chassisshow` (V4.1.x only)
33. `fanshow` (V4.1.x only)
34. `historyshow` (V4.1.x only)
35. /sbin/bootenv (V4.1.x only)
    Displays boot prom parameters and which partition boot attempt should be made from first.

36. `/sbin/sin` (V4.1.x only)
    Displays hardware listing of CP components.
37. `/bin/df` (V4.1.x only)
    Displays file systems available.
38. `/sbin/ifconfig` (V4.1.x only)
    Displays all IP addresses. Eth0 is the IP address of the active CP.
39. `/sbin/route` (V4.1.x only)
40. `mii-tool -vv` (V4.1.x only)
    Displays output from 10baseT Full duplex information
41. `/usr/bin/du -xh / | /bin/sort` (V4.1.x only)
    Calculates directory sizes, can use diff to see if something is missing or different.
42. `/bin/ps -elfH` (V4.1.x only)
    Displays Process list PID, and which daemons switch is running.
43. `/bin/rpm -qa` (V4.1.x only)
    Displays package manager.exe with which you can query all packages running on switch.
44. `/bin/cat /var/log/dmesg` (V4.1.x only)
    Displays the messages file.
45. `/bin/cat /etc/fstab` (V4.1.x only)
    Displays the mount points.
46. `/bin/cat /etc/mtab` (V4.1.x only)
    Displays current mount points.
47. `printing proc entries` (V4.1.x only)
    Displays all devices.
48. `configshow`
49. `faultshow` (V3.1.x only)
50. `traceshow` (V3.1.x only)
51. `memshow` (V3.1.x only)
52. `mallocshow` (V3.1.x only)
53. `fastcheckheap` (V3.1.x only)
54. `portlogdump`

55. `diagshow` (V4.1.x only)
    Displays diagnostic information for the slot specified, if no slot is specified then all slots on logical switch are displayed.
56. `portshow` (V4.1.x only)
    Displays port information for all ports specified. The default value is to display information for all ports.
57. `portregshow` (V4.1.x only)
58. `portrouteshow` (V4.1.x only)

Operands

This command has the following operands:

`firstPort` (V3.1.x only)	Specify the first port of a range of ports to dump information. The default (if no operand specified) is to print state of port 0. If only `firstPort` is specified, only information for `firstPort` is printed. This operand is optional.
`lastPort` (V3.1.x only)	Specify the last port of range of ports to dump information. If `firstPort` is specified, but `lastPort` is not specified, only firstPort information is printed for the port based commands (`portShow`, `portRegShow`, `portRouteShow`). If no operand is supplied, `firstPort` is set to 0 and `lastPort` is set to maximum port of switch. This operand is optional.
`nLog` (V3.1.x only)	Specify the number of lines of `PortLogDump` to print: ■ 0 = dump all lines (default) ■ N = dump the last N lines ■ <0 = skip `portLogDump` output This operand is optional.
`slotnumber` (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.

port1 (V4.1.x only)	Specify the first port of a range of ports to display information. Enter the port area number. The default (if no operand specified) is to print state of port 0. If only startPort is specified, only information for startPort is printed. This operand is required.
port2 (V4.1.x only)	Specify the last port of range of ports to display information. Enter the port area number. If startPort is specified but endPort is not specified, only endPort information is printed for the port based commands (`portshow`, `portregshow`, `portrouteshow`). If no operand is supplied, startPort is set to 0 and endPort is set to maximum port of switch. This operand is required.
lines (V4.1.x only)	Specify the number of lines output from this command. This operand is optional.

Example

To display switch information for debugging:

```
switch:admin> supportshow

Kernel:     5.3.1
Fabric OS:  v3.1
Made on:    Tue Apr 6 16:57:22 PDT 2002
Flash:      Thu Apr 1 10:23:43 PST 2002
BootProm:   Thu Oct 1 13:34:29 PDT 2002

Up for:      12 secs
Powered for: 472 days, 19:15
Last up at:  Tue May  2 10:48:21 2000
Reason:      Reboot

 37   34   37   45   49  Centigrade
 98   93   98  113  120  Fahrenheit

Power Supply #1 is absent
Power Supply #2 is absent

byRdzdSRxyczSe0D:
Web license


Diagnostics Status:  Tue Apr  6 16:22:34 1999

< ... sample output truncated ... >
```

To display switch information for debugging:

```
switch:admin> supportshow 4/0, 15
version:
Kernel:     2.4.2
Fabric OS:  4.0.0
Made on:    Thu Oct 25 00:58:55 2001
Flash:      Thu Oct 25 00:58:55 2001
BootProm:   Unknown

uptime:
 11:46pm  up  4:39,  3 users,  load average: 1.85, 1.45, 1.15

tempshow:
Index   Slot    State           Centigrade     Fahrenheit
=========================================================
  1      1      Absent
  2      2      Absent
  3      3      Absent
  4      4      Ok                  40            104
  5      5      Ok                  27             80
  6      6      Absent

< ... sample output truncated ... >
```

See Also

switchShow

switchBeacon

Set switch beaconing mode on or off.

Synopsis

`switchBeacon` *[mode]*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set the switch beaconing mode on (if the operand is 1) or off (if the operand is 0).

When beaconing mode is turned on, the port LEDs flash amber in a running pattern from port 0 to port 15, and then back again. The user sees a running pattern in amber LEDs, from left to right and right to left. The pattern continues until turned off by the user.

Beaconing mode affects only the port LEDs. Other commands are still executable and functional. The normal flashing LED pattern (associated with an active, faulty or disabled port) is suppressed and the beaconing pattern is shown. However, if diagnostic frame based tests (`portLoopbackTest`, `crossPortTest`, and `spinSilk`) are executed, two patterns are interleaved. The diagnostic test flickers the LEDs green and simultaneously the beaconing mode runs the LEDs amber.

Use the `switchShow` command to display the status of beaconing.

Operands

This command has the following operand:

mode	Specify 1 to enable beaconmode or 0 to disable beaconmode. This operand is optional.

If no operand is specified the current value is displayed.

Example

To turn beaconing mode ON:

```
switch:admin> switchBeacon 1
```

To turn beaconing mode OFF:

```
switch:admin> switchBeacon 0
```

See Also

switchShow

switchcfgpersistentdisable

Disable switch persistently.

Synopsis

```
switchcfgpersistentdisable
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to persistently disable the switch. The persistently disabled switch remains disabled across power cycles and switch reboots. It will not participate in fabric reconfiguration and will remain isolated from the rest of the topology. By default a switch is enabled persistently.

When this command is executed, it will become effective immediately by disabling the switch, if it is not already disabled.

The persistent switch disable configuration overrides all other switch configurations but it does not alter any of them. The `switchcfgpersistentenable` command will enable the switch persistently. The persistent switch enable will also re-enable all previously set switch configurations.

The persistent switch disable configuration will override port persistent enable configurations but it will not alter them.

The persistently disabled switch will still run the power on diagnostics and initialize all the ports.

A persistently disabled switch can temporarily be enabled by `switchenable` command until the next switch disable, power cycle, or switch reboot.

Operands

None.

Example

To disable a switch persistently:

```
switch:admin> switchcfgpersistentdisable
Committing configuration...done.
Command in progress . . . . . done
```

See Also

configure

configshow

portcfgpersistentdisable

portcfgpersistentenable

portcfgshow

portshow

switchcfgpersistentenable

switchshow

switchcfgpersistentenable

Enable a switch persistently.

Synopsis

```
switchcfgpersistentenable
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to persistently enable the switch. The persistently enabled switch remains enabled across power cycles and switch reboots. By default a switch is enabled persistently.

When this command is executed, it will be effective immediately by enabling the switch, if it is not already enabled.

The persistent switch disable configuration overrides all other switch configurations but it does not alter any of them. The persistent switch enable will also re-enable all previously set switch configurations.

A persistently enabled switch can temporarily be disabled by `switchdisable` command until next switch enable, power cycle or switch reboot.

The persistent switch disable or enable configuration does not alter the persistent disable or enable configurations of the ports within the switch.

Operands

None.

Example

The following example configures the switch as persistently enabled:

```
switch:admin> switchcfgpersistentenable
Committing configuration...done.
Command in progress . . . . . done
```

See Also

configure

configshow

portcfgpersistentdisable

portcfgpersistentenable

portcfgshow

portshow

switchcfgpersistentdisable

switchshow

switchCfgSpeed

Configure all ports of the switch to a particular speed level.

Synopsis

`switchCfgSpeed` *`speed_level`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to configure the speed of all the ports on a switch to a particular level. The configuration is saved in the non-volatile memory and persists across switch reboot or power cycle.

The output of `portShow` displays achieved speed level and `portCfgShow` displays the user's desired speed setting. In the `portShow` output, the speed level is indicated as the current port speed of "1-Gbps" or "2-Gbps." In the `portCfgShow` output, the speed level is indicated as "1G," "2G," or "AN" (Auto-Negotiate).

Operands

This command has the following operand:

`speed_level`	Specify the speed of a port. This operand is required. Valid values are one of the following: 0: Auto-sensing mode. The port automatically configures for the highest speed. 1: 1-Gbps mode. The port will be at fixed speed of 1-Gbps. 2: 2-Gbps mode. The port will be at fixed speed of 2-Gbps.

Example

To set the speed level for all ports on a switch:

```
switch:admin> switchCfgSpeed 2
done.
switch:admin>
```

See Also

portCfgSpeed

switchShow

switchCfgTrunk

Enable or disable trunking on all the ports of a switch.

Synopsis

`switchCfgTrunk` *mode*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable or disable trunking on all the ports of a switch.

Note: This command requires the Trunking license.

Operands

This command has the following operand:

mode	Specify 1 to enable trunking on all the ports on this switch. Specify 0 to disable trunking on all the ports on this switch. This operand is required.

Example

To enable trunking on a switch:

```
switch:admin> switchCfgTrunk 1
done.
```

See Also

portCfgShow
portCfgTrunkPort
portShow
switchShow

switchDisable

Disable the switch.

Synopsis

```
switchDisable
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to disable the switch. All Fibre Channel ports are taken offline; if the switch was part of a fabric, the remaining switches reconfigure.

The switch must be disabled before making configuration changes (using `configure` or `configDefault`) or before running many of the diagnostic tests. All commands that require the switch to be disabled send an error if invoked while the switch is enabled.

The switch does not need to be disabled before rebooting or powering off.

As each port is disabled, the front panel LED changes to a slow flashing yellow.

Operands

None.

Example

To disable the switch:

```
switch:admin> switchDisable
```

See Also

switchEnable
switchShow

switchEnable

Enable the switch.

Synopsis

```
switchEnable
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to enable the switch. All Fibre Channel ports that passed POST are enabled. They can come online if connected to a device, or remain offline if disconnected. A switch may need to be enabled if it was previously disabled to make configuration changes or to run diagnostics.

If the switch is connected to a fabric, it rejoins the fabric. When this command is issued, the 10 second fabric stability count down is displayed. If this switch remains the principal switch at the end of the countdown, then it assigns itself a domain ID. If another switch assumes the principal role, then this switch becomes a subordinate switch, and accepts a domain ID from the principal. See FC-SW for a complete description of this process.

As each port is enabled, the front panel LED changes to green for online ports, black for disconnected ports, or yellow for uninitialized ports.

Operands

None.

Example

To enable a switch:

```
switch:admin> switchEnable
10  9  8  7  6  5  4  3  2  1
fabric: Principal switch
fabric: Domain 1
```

See Also

switchDisable

switchShow

switchName

Displays or sets the switch name.

Synopsis

`switchName [“newName”]`

Availability

All users (display).

Admin (set).

Release

V3.1.x and V4.1.x

Description

Use this command without an operand to display the current switch name. All switches have a symbolic name that is primarily used for switch management. This name is also shown in the telnet prompt, under each switch icon on the Web Tools Fabric View, and in the output of many telnet commands, such as `fabricshow`.

Enter this command with no operand to display the current switch name.

Use this command with the `newName` operand to assign a new switch name. Switch names can be up to 15 characters long, must begin with an alpha character, and can consist of a combination of alpha, numeric, and underscore characters.

Changing the switch name causes a domain address format RSCN to be issued (see FC-FLA for a description of RSCNs).

The switch's name may also be changed using Web Tools.

Operands

This command has the following operand:

newName	Specify a new name for the switch, in quotation marks. This operand is optional.

Example

To change a switch name to sw10:

```
switch:admin> switchName "sw10"
Committing configuration...
Done.
sw10:admin>
```

See Also

fabricShow

switchShow

switchReboot

Halt and bring down the operational switch.

Synopsis

```
switchReboot
```

Availability

Admin

Release

V4.1.x

Description

This command reboots the operational switch without disrupting the other switch in the StorageWorks Core switch chassis. The administrator uses this command when the problem with the switch cannot be determined. Using this command brings the switch back to an operational state without disturbing the software state of the system in general.

This command is equal to running `switchShutdown` and `switchStart`.

Note: For the StorageWorks Core switch, the switchreboot command will reboot only the logical switch you are currently logged into. The other logical switch and both CPs remain unaffected.

Operands

None.

Example

To bring down an operational switch:

```
switch:admin> switchreboot
Selecting i2c bus...Done.
Stopping all switch daemons...Done.
Releasing i2c bus...Done.
Powering off slot 7...Done.
Checking all slots are powered off....Done.
Cleaning up kernel modules...Done.
Initializing kernel modules...Done.
setup FCIP IP: ifconfig fc1 ip=192.168.69.190, netmask=255.255.255.0
Starting all switch daemons...Done.
Powering on slot 7...Done.
Checking diagnostics..............
Start Apache -- /etc/rc.d/init.d/httpd.sh start 1 192.168.174.95
192.168.69.190
Start snmpd -- /etc/rc.d/init.d/snmpd.sh start 1
starting http server [1] ...
.Starting snmpd:\n
SNMP Research SNMP Agent Resident Module Version 15.2.1.3
Copyright 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999
SNMP
Research, Inc..
/fabos/webtools/bin/apachectl.1 start: httpd started
done.
```

See Also

switchShutdown

switchStart

switchShow

Displays switch and port status.

Synopsis

```
switchShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display switch and port status information. Information may vary by switch model. Below is the information provided. The first section provides switch summary information; it is followed by a section covering summary information by port.

Switch summary information:

switchName	Displays the switch symbolic name.
switchType	Displays the switch model and firmware revision number.
switchState	Displays the switch state: online, offline, testing, faulty.
switchMode (V3.1.x only)	Displays the switch mode: native.
switchRole	Displays the switch role: principal, subordinate, disabled.
switchDomain	Displays the switch domain ID: 0-31 or 1-239.
switchId	Displays the switch embedded port D_ID.
switchWwn	Displays the switch World Wide Name.
switchBeacon	Displays the switch's beaconing state (either ON or OFF).
blade_n:Beacon (V4.1.x only)	Displays the blade's beaconing state (either ON or OFF). Each blade is numbered by its position in the StorageWorks Core switch chassis (from 1 to 10).

Zoning (V3.1.x only)	Displays the switch zoning mode: On or Off.

The switch summary is followed by one line per port:

Area (V4.1.x only)	Each slot and port combination in the StorageWorks Core switch is assigned an area number. For example, the area number of slot 3/port 15 is 63 (in switch 0), the area number for slot 10/port 15 is also 63 (in switch 1). This parameter is for V4.1.x only.
Slot (V4.1.x only)	Slot number. The StorageWorks Core switch has 10 slots numbered from 1 to 4 and 7 to 10. Slots 5 and 6 are control processor cards. This parameter is for V4.1.x only.
Port Number (V3.1.x only) Port (V4.1.x only)	Port number. Valid values vary depending on the switch type.
Module Type (V3.1.x only) SFP (V4.1.x only)	Port module type (SFP or other): ■ -- No module present ■ sw - Shortwave laser ■ lw - Longwave laser ■ cu - Copper ■ id - Serial ID Use `sfpshow` to view whether a serial ID SFP is sw/lw/cu.
Port Speed (V3.1.x only) Speed (V4.1.x only)	The speed of the port: ■ 1G - 1-Gbps fixed transfer speed ■ 2G - 2-Gbpsvfixed transfer speed ■ N1 - 1-Gbps negotiated transfer speed ■ N2 - 2-Gbps negotiated transfer speed ■ AN - Auto negotiating

Port State (V3.1.x only) State (V4.1.x only)	Port state information: ■ No_Card - No interface card present ■ No_Module - No module (SFP or other) present ■ No_Light - Module not receiving light ■ No_Sync - Module receiving light but out of sync ■ In_Sync - Module receiving light and in sync ■ Laser_Flt - Module signaling a laser fault ■ Port_Flt - Port marked faulty ■ Diag_Flt - Port failed diagnostics ■ Lock_Ref - Locking to the reference signal ■ Testing - Running diagnostics ■ Online - Port is up and running
Port Distance (V3.1.x only)	The port's long distance mode. If a port is configured as a long distance port, the long distance level is shown in the format of "Lx," x being the long distance level number. See `portcfglongdistance` for the level description.
comment	The **comment** field may be blank, or it may display: ■ Disabled - The port is disabled ■ Bypassed - Port is bypassed (loop only) ■ Loopback - Port is in loopback mode ■ E_Port - Fabric port, shows WWN and name of attached switch ■ F_Port - Point-to-point port, shows WWN of attached N_Port ■ G_Port - Point-to-point but not yet E_Port or F_Port ■ L_Port - Loop port, shows number of NL_Ports ■ (Trunk master) - This port is the master port in a group of trunking ports ■ (Trunk port, master is port #x) - This port is configured as a trunking port, the master port is port number `x`. ■ (upstream) - This E-port is an upstream path towards the principal switch of the fabric. ■ (downstream) - This E-port is a downstream path away from the principal switch of the fabric. ■ WWN - This is the WWN of the switch connected to the E-port. ■ "switch_name" - This is the switch name of the connected switch.

more comments — The **comment** field may have additional comments depending on the **comment** field entry.

- Disabled: A disabled port may have additional comments that explain the reason for disabling it.
  - (Persistent)
  - (Security violation)
- L-Port: An L-port may indicate the number for public, private and phantom devices in the loop.
- E-Port: An E-port may display one or more of the following.
  - WWN of the switch connected.
  - Switch name of the switch connected.
  - One or more inter-switch-link attributes.
  - Trunking information.
- F-Port: An F-port may display the port WWN of the device attached to it.

Operands

None.

Example

The following example shows a StorageWorks Core switch:

```
switch:admin> switchshow
switchName:     switch
switchType:     16.2
switchState:    Online
switchMode:     Native
switchRole:     Subordinate
switchDomain:   7
switchId:       fffc07
switchWwn:      10:00:00:60:69:c0:0e:88
switchBeacon:   OFF
Zoning:         ON (cfg1)
port  0: id N2 Online      E-Port 10:00:00:60:69:c0:0f:04 "web189" (upstream)

port  1: id N2 No_Light
port  2: id N2 No_Light
port  3: id N2 No_Light
port  4: id N2 No_Light
port  5: id N2 No_Light
port  6: id N2 No_Light
port  7: id N2 No_Light
switch:admin>
```

The following example shows a StorageWorks 2 Gb SAN switch:

```
switch:admin> switchshow
switchName:     switch
switchType:     10.1
switchState:    Online
switchRole:     Subordinate
switchDomain:   4
switchId:       fffc04
switchWwn:      10:00:00:60:69:00:54:e9
switchBeacon:   OFF
blade7 Beacon:  OFF
blade9 Beacon:  OFF

Area Slot Port Gbic Speed State
=====================================
 0    7    0   --    N2   No_Module
 1    7    1   --    N2   No_Module
 2    7    2   --    N2   No_Module
 3    7    3   id    N2   No_Light
 4    7    4   id    N2   Online E-Port (Trunk port, master is Slot  7 Port 5)
 5    7    5   id    N2   Online E-Port 10:00:00:60:69:00:54:e8 "san94"
(upstream)(Trunk master)
 6    7    6   id    N2   Online E-Port (Trunk port, master is Slot  7 Port 5)
 7    7    7   id    N2   Online E-Port (Trunk port, master is Slot  7 Port 5)
 8    7    8   --    N2   No_Module
 9    7    9   --    N2   No_Module
10    7   10   --    N2   No_Module
11    7   11   --    N2   No_Module
12    7   12   id    N2   No_Light
13    7   13   id    N2   No_Light
14    7   14   id    N2   No_Light
15    7   15   id    N2   Online    L-Port  8 public
32    9    0   --    N2   No_Module
33    9    1   --    N2   No_Module
34    9    2   --    N2   No_Module
35    9    3   --    N2   No_Module
36    9    4   --    N2   No_Module
37    9    5   --    N2   No_Module
38    9    6   --    N2   No_Module
39    9    7   --    N2   No_Module
40    9    8   id    N2   Online E-Port (Trunk port, master is Slot  9 Port 9)
41    9    9   id    N2   Online E-Port 10:00:00:60:69:50:08:d5 "sqad11"
(downstream)(Trunk master)
42    9   10   id    N2   Online E-Port (Trunk port, master is Slot  9 Port 9)
43    9   11   id    N2   Online E-Port (Trunk port, master is Slot  9 Port 9)
44    9   12   --    N2   No_Module
45    9   13   --    N2   No_Module
46    9   14   --    N2   No_Module
47    9   15   id    N2   Online    F-Port  10:00:00:00:c9:27:2e:9b
```

See Also

switchDisable
switchEnable
switchName

switchShutdown

Halt the operational switch.

Synopsis

```
switchShutdown
```

Availability

Admin

Release

V4.1.x

Description

This command halts the switch operation without disrupting the other switch in the StorageWorks Core switch chassis. This command disables a logical switch in a StorageWorks Core switch without disturbing the software state of the system in general.

This command has to be used in combination with `switchStart`.

This command brings down all the daemons associated with the switch, frees the resources and object states associated with the switch to a clear state, and disables all the ports and blades associated with the switch.

Note: This command is not supported on non-blade systems.

Operands

None.

Example

To bring down the current logical switch without disrupting the other switch in the chassis:

```
switch:admin> switchshutdown
Stopping all switch daemons...Done.
Powering off slot 1...Done.
Powering off slot 4...Done.
Checking all slots are powered off...Done.
Cleaning up kernel modules...Done.
```

See Also

switchReboot

switchStart

switchStart

Initialize the switch to operational.

Synopsis

```
switchStart
```

Availability

Admin

Release

V4.1.x

Description

This command initializes a logical switch without disrupting the other switch in the StorageWorks Core switch chassis. This command enables a logical switch in a StorageWorks Core switch without disturbing the software state of the system in general.

This command has to be used in combination with `switchShutdown`.

This command starts all the daemons associated with the switch, initializes the object states associated with the switch to a clear state, and enables all the ports/blades associated with the switch.

Note: This command is not supported on non-blade systems.

Operands

None.

Example

To initialize the logical switch to operational:

```
switch:admin> switchstart
Initializing kernel modules...Done.
Starting all switch daemons...Done.
Powering on slot 1...Done.q> to stop
Powering on slot 4...Done.q> to stop
Checking diagnostics...Done.
setup FCIP IP: ifconfig fc0 ip=0.0.0.0, netmask=255.255.255.0
```

See Also

switchReboot

switchShutdown

switchStatusPolicySet

Set the policy parameters that determine the overall switch status.

Synopsis

```
switchStatusPolicySet
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to set the policy parameters for calculating the overall status of the switch enclosure. The policy parameter values determine how many failed or faulty units of each contributor are allowed before triggering a status change in the switch from HEALTHY to MARGINAL or DOWN.

The command will print the current parameters in a three column table format. The first column specifies the contributor; the second column specifies the minimum number that contributes to the DOWN/FAILED status; the third column specifies the minimum number that contributes to the MARGINAL/WARNING status. This command then prompts the user to change the values for each policy parameter. The default values for the policy parameters are as follows:

Table 16: Contributor Value and Status

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	2	1
MissingSFPs	0	0
PowerSupplies	2 (V3.1.x only) 2 in the StorageWorks 2 Gb SAN switch (V4.1.x only) 3 in the StorageWorks Core switch (V4.1.x only)	1

Table 16: Contributor Value and Status (Continued)

Contributor	Default Value for DOWN	Default Value for MARGINAL
Temperatures	2	1
Fans	2	1
PortStatus	0	0
ISLStatus	2	1

Any single contributor can force the overall status of the switch to MARGINAL or DOWN. For example, assuming that the switch contributor values are set to the default values, if there is one faulty port in a switch, then this contributor would set the overall switch status to MARGINAL. If two ports were faulty, then this contributor would set the overall switch status to DOWN.

This command enables you to set a threshold for each contributor, so that a certain number of failures are required to change the overall status of the switch.

If the value of a policy parameter is set to 0, it means that this factor is not used to determine the status of the switch. If the range of values for a particular contributor are set to 0 for both MARGINAL and DOWN, that contributor is not used in the calculation of the overall switch status.

ISLStatus monitors ISLs that are part of a defined switch group. The status of other ISLs on the same switch but outside of the group definition will not be considered when calculating switch status. If no switch groups are defined on this switch, then these ISLStatus settings will have no effect on switch status.

The ISLStatus does not affect the status of the switch as quickly as the other contributors. It may take a few minutes for a switch group ISL status change to affect the state of the switch.

When **PortStatus** monitoring is set to values of (0,0), port status changes are not logged to the event log and console. Similarly, SFP removal does not generate a message to the event log and console if **MissingSFPs** is set to (0,0). By configuring these options, the user can more closely monitor for port status and removal of SFPs.

Operands

None.

Example

Notice that in the following example, the only parameter modified is the number of MissingSFPS allowed before a MARGINAL status is triggered:

```
switch:admin> switchStatusPolicySet
    To change the overall switch status policy parameters
    The current overall switch status policy parameters:
                      Down    Marginal
     ---------------------------------
           FaultyPorts  1         0
           MissingSFPs  0         1
         PowerSupplies  2         1
          Temperatures  2         1
                  Fans  2         1
            PortStatus  0         0
             ISLStatus  2         1

Note that the value, 0, for a parameter, means that it is
     NOT used in the calculation.
     ** In addition, if the range of settable values in the prompt is (0..0),
     ** the policy parameter is NOT applicable to the switch.
     ** Simply hit the Return key.
     The minimum number of
       FaultyPorts contributing to DOWN status: (0..64) [2]
       FaultyPorts contributing to MARGINAL status: (0..64) [1]
       MissingSFPs contributing to DOWN status: (0..64) [0]
       MissingSFPs contributing to MARGINAL status: (0..64) [0] 1
       Bad PowerSupplies contributing to DOWN status: (0..4) [2]
       Bad PowerSupplies contributing to MARGINAL status: (0..4) [1]
       Bad Temperatures contributing to DOWN status: (0..8) [2]
       Bad Temperatures contributing to MARGINAL status: (0..8) [1]
       Bad Fans contributing to DOWN status: (0..3) [2]
       Bad Fans contributing to MARGINAL status: (0..3) [1]
       Down PortStatus contributing to DOWN status: (0..64) [0]
       Down PortStatus contributing to MARGINAL status: (0..64) [0]
       Down ISLStatus contributing to DOWN status: (0..64) [2]
       Down ISLStatus contributing to MARGINAL status: (0..64) [1]
Policy parameter set has been changed
switch:admin>
```

See Also

switchStatusPolicyShow

switchStatusShow

switchStatusPolicyShow

Displays the policy parameters that determine the overall switch status.

Synopsis

```
switchStatusPolicyShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to view the current policy parameters set for the switch. These policy parameters determine the number of failed or non-operational units allowed for each contributor before triggering a status change in the switch.

The command will print the current parameters in a three column table format. The first column specifies the contributor; the second column specifies the minimum number that contributes to the DOWN/FAILED status; the third column specifies the minimum number that contributes to the MARGINAL/WARNING status. The default values for the policy parameters are as follows:

Table 17: Contributor Value and Status

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	2	1
MissingSFPs	0	0
PowerSupplies	2 (V3.1.x only) 2 in the StorageWorks 2 Gb SAN switch (V4.1.x only) 3 in the StorageWorks Core switch (V4.1.x only)	1
Temperatures	2	1

Table 17: Contributor Value and Status (Continued)

Contributor	Default Value for DOWN	Default Value for MARGINAL
Fans	2	1
PortStatus	0	0
ISLStatus	2	1

The policy parameters determine the number of failed or non-operational units for each contributor that trigger a status change in the switch. For example, if the FaultyPorts DOWN parameter is set to 3, and 3 ports fail in the switch, then the status of the switch changes to DOWN.

Operands

None.

Example

To display the switch status policy:

```
switch:admin> switchStatusPolicyShow
The current overall switch status policy parameters:
                    Down    Marginal
     ---------------------------------
           FaultyPorts  1         0
           MissingSFPs  0         1
         PowerSupplies  2         1
          Temperatures  3         1
                  Fans  3         1
            PortStatus  0         0
             ISLStatus  2         1
```

See Also

switchStatusPolicySet

switchStatusShow

switchStatusShow

Displays the overall status of the switch.

Synopsis

```
switchStatusShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the overall status of the switch. The overall status is calculated based on the most severe status of all contributors:

- Internal Switch Status
- Faulty Ports
- Missing SFPs
- Power Supplies
- Fans
- Temperatures
- Port Status

The overall status can be one of the following:

- Healthy/OK - every contributor is healthy
- Marginal/Warning - one or more components are causing a warning status
- Down/Failed - one or more contributors have failed

If the overall status is not HEALTHY/OK, the contributing factors are listed.

Operands

None.

Example

There are two examples below. The first shows a switch with a status of MARGINAL, the second shows the same switch after all the errors have been fixed.

```
switch:admin> switchStatusShow
The overall switch status is Marginal/Warning
Contributing factors:
*  1 missing power supply triggered the Marginal/Warning status
*  1 bad fans, 2 good fans triggered the Marginal/Warning status
*  1 missing SFP triggered the Marginal/Warning status

switch:admin> switchStatusShow
The overall switch status is HEALTHY/OK
```

See Also

switchStatusPolicySet

switchStatusPolicyShow

switchuptime

Displays the amount of time the switch has been operating.

Synopsis

```
switchuptime
```

Availability

All users.

Release

V4.1.x

Description

Use this command to display the current time and the amount of time the switch has been operational.

Operands

None.

Example

To view the uptime for the switch:

```
switch:admin> switchuptime
2:00pm   up for 17 hrs 44 mins
sqab14:admin>
```

See Also

switchReboot

switchShutdown

switchStart

syslogdIpAdd

Add the IP address of a syslog daemon.

Synopsis: V3.1.x

```
syslogdIpAdd "IPaddr"
```

Synopsis: V4.1.x

```
syslogdIpAdd "ip_address"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to add the IP address of a syslog daemon, that is, the IP address of the server which is running the `syslogd` process. The syslog daemon (`syslogd`) is a process available on most UNIX systems that reads and forwards system messages to the appropriate log files and users, depending on the system configuration.

When one or more IP addresses are configured, the switch forwards all error log entries to the `syslogd` on the specified servers. Up to six servers are supported.

Operands

This command has the following operands:

IPaddr (V3.1.x only)	Specify the IP address, enclosed in quotation marks, of the server running `syslogd`. This operand is required.
ip_address (V4.1.x only)	Specify the IP address of the server running `syslogd`. This operand is required.

Example

To add the address 11.22.33.44 to the list of machines to which system messages are sent (V3.1.x example):

```
switch:admin> syslogdIpAdd "11.22.33.44"
```

See Also

errShow

syslogdIpRemove

syslogdIpShow

syslogdIpRemove

Remove the IP address of a syslog daemon.

Synopsis: V3.1.x

```
syslogdIpRemove "IPaddress"
```

Synopsis: V4.1.x

```
syslogdIpRemove "ip_address"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to remove the IP address of a syslog daemon, that is, the IP address of the server which is running the `syslogd` process.

Operands

This command has the following operand:

*IPaddr*ess (V3.1.x only)	Specify the IP address, enclosed in quotation marks, of the server running `syslogd`. This operand is required.
ip_address (V4.1.x only)	Specify the IP address of the server running `syslogd`. This operand is required.

Example

To remove the address 11.22.33.44 from the list of machines to which system messages are sent (V4.1.x example):

```
switch:admin> syslogdIpRemove 11.22.33.44
Committing configuration...done.
```

See Also

errShow

syslogdIpAdd

syslogdIpShow

syslogdIpShow

Displays all syslog daemon IP addresses.

Synopsis

```
syslogdIpShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display all **syslog** daemon IP addresses in the configuration database.

Operands

None.

Example

To display all `syslog` daemon IP addresses:

```
switch:admin> syslogdIpShow
syslog.IP.address.1:    11.22.33.44
syslog.IP.address.2:    11.22.33.45
syslog.IP.address.3:    11.22.33.46
```

See Also

errShow

syslogdIpAdd

syslogdIpRemove

systemtest

Run a series of diagnostic tests on a switch blade.

Synopsis

```
systemtest [[--slot] slotno][-log logfile]
```

Availability

Admin

Release

V4.1.x

Description

This command will run a suite of diagnostic tests on the specified switch blade. It is not required to install loop-back plugs on every port as in the case of `bladediag` and `bladediagshort`.

Note: This command is provided just for compatibility and may be removed in the future releases.

Operands

This command has the following operands:

[--slot] slotno	Specify which slot to operate on. If this option is not specified, the current slot will be assumed.
-log logfile	Indicates that the output of the command will be placed in a file named by the logfile argument. The log file will contain all activity that occurred during the execution of the command. All error messages are also saved in the logfile. If this option is not specified, no log file is created.

Example

To run a suite of diagnostics on blade 7:

```
switch:admin> systemtest -slot 7
Testing slot: 7, user ports: 3 2 1 0 7 6 5 4 11 10 9 8 15 14 13 12


PortRegTest

Running Port Register Test ....
 passed.
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 2 min & 23 sec (0:2:23:443).
 passed.
Test return status: 0


CentralMemoryTest

Running centralmemorytest ............ passed.
Test Complete: "centralmemorytest" Pass 1 of 1
Duration 0 hr, 0 min & 19 sec (0:0:19:611).
 passed.
Test return status: 0

<output truncated>
```

See Also

bladediag

bladediagshort

systemverification

Run a suit of diagnostic tests on all switches in a fabric.

Synopsis

`systemverification` *`[-parameters | -short]`*

Availability

Admin

Release

V4.1.x

Description

Use this command to run a comprehensive system wide test of all switches in a fabric. It will initiate a burnin run on all switches within the current system.

The run can be terminated by issuing a control “c” *`<Ctrl-c>`* character from the initiating terminal. All of the burnin features are operational during the `systemverification` command. The `burninerrshow` will display the stored burnin errlogs, the logs by blade are saved in `/var/log/`*`switchburnin.<switch>.<slot>`* files. On the fixed port count products, the slot defaults to 0.

The command monitors the testing, and will terminate the burnin activity if all the elements have failed. Each failing slot will only output the first observed fail. Since this monitoring is a polling activity, the command number output may not be the exact command number that failed. After the testing has terminated, `burninstatus` command is output, and the `burninerrshow` messages for the failing slots are output. If all slots pass, then only the `burninstatus` command output is displayed.

The burnin tests are designed to operate with switches connected to a fabric and restricts the frame loopback to inside the unit. If loopback plugs are installed in all ports, the burnin parameter min_lb_mode can be changes to 1 to test the fibre channel through the loopback plug.

Operands

This command has the following operands:

-parameters	Invokes the `diagsetcycle` command before starting the burnin run. This will allow users to modify the burnin parameters prior to the run. These `diagsetcycle` parameters are copied to all switches in the system and override the original settings in the database. If the `diagsetcycle` parameter is not specified, then the run will use the previously stored values. This option does not performs a `burninerrclear` operation prior to starting the testing operation.
-short	Sets the burnin parameters that control the number of frames to 1. The primary use for this command is for software regression testing, or a quick validation that all hardware is operational. The shorter test cycle will not have enough test time to detect intermittent errors. This option performs a `burninerrclear` operation prior to starting the testing operation.

Example

To initiate a system verification test on all switches in the fabric:

```
switch:admin> systemverification -short
systemverification: Setting parameters for short run.
systemverification: burnin parameters.
CURRENT - KEYWORD       : DEFAULT
1       - number_of_runs        : 1
2       - vib   : 2
10      - thermal       : 10
SYSTEMVERIFICATION      - label : BURNIN
2       - min_lb_mode   : 2
1       - tbr_passes    : 1
1       - prt_on        : 1
1       - cntmem_on     : 1
1       - cmi_on        : 1
1       - retention_on  : 1
1       - cam_on        : 1
1       - flt_passes    : 50
1       - sta_passes    : 25
1       - plb_nframes   : 100
1       - txd_nframes   : 50
1       - xpt_nframes   : 200
1       - bpt_nframes   : 20
1       - slk_nmegs     : 50
1       - bpt_all_nframes       : 30
1       - slk_all_nmegs : 50
systemverification: Arming the burnin run on switch 0.
systemverification: Starting burnin on Switch 0
systemverification: Monitoring progress of the burnin activity.
systemverification: Outputting Status
State           Status  Run     Cmd     TotCmds Script
COMPLETED       PASS    1       22      22      switchburnin.sh
```

Errors

Each diagnostic test in this suit may report its own set of error messages when it detects failures. See DIAGNOSTICS section of individual diagnostic test help pages. These messages are only available in the log file.

See Also

burninerrclear

burninstatus

diagsetburnin

diagsetcycle

tempShow

Displays temperature readings.

Synopsis

```
tempShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the current temperature readings of all temperature sensors in a switch. Each temperature sensor has an index. The indices start from 1. There can be more than one sensor per slot. The slot number to which a sensor belongs is displayed in the column next to the index. The temperature readings are given in both Centigrade and Fahrenheit.

Refer to the Hardware Reference Manual for your switch to determine the normal temperature range values.

Operands

None.

Example

To display the temperature readings of a switch (V3.1.x example):

```
switch:admin> tempshow
32   30   28  Centigrade
89   86   82  Fahrenheit
switch:admin>
```

This example shows a StorageWorks Core switch (V4.1.x example):

```
switch:admin> tempshow

Index   Slot    State           Centigrade     Fahrenheit
=========================================================
  1       1     Ok                   47            116
  2       2     Absent
  3       3     Absent
  4       4     Ok                   46            114
  5       5     Ok                   33             91
  6       6     Ok                   33             91

switch:admin>
```

Note: For the StorageWorks Core switch, this command only returns the temperature sensor values for the logical switch you are logged into, not for the entire chassis.

This example shows a StorageWorks 2 Gb SAN switch:

```
switch:admin> tempshow

Index   Slot    State           Centigrade     Fahrenheit
=========================================================
  1       0     Ok                   39            102
  2       0     Ok                   41            105
  3       0     Ok                   27             80
  4       0     Ok                   39            102
  5       0     Ok                   42            107

switch:admin>
```

See Also

fanShow

psShow

sensorShow

slotShow

timeout

Set or show the IDLE timeout value for a login session.

Synopsis

```
timeout [timeval]
```

Availability

All users (for viewing only).

Admin (show/set).

Release

V3.1.x and V4.1.x

Description

Use this command with no operands to display the current telnet timeout value. Use this command with an operand to sets the idle timeout value to the specified minutes. Using a timeout value of zero will disable the timeout functionality so that login sessions would never be disconnected.

Operands

This command has the following operand:

timeval	Specify the number of minutes for the telnet timeout value. This operand is optional.

Example

The following sets the idle timeout to 10 minutes (V3.1.x example):

```
switch:admin> timeout 10
Committing configuration...done.
TimeOut is now 10 minutes
switch:admin>
```

See Also

None.

topologyShow

Displays the unicast fabric topology.

Synopsis

`topologyShow [domainnumber]`

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the fabric topology, as it appears to the local switch.

This includes:

- A list of all domains that are part of the fabric, and to each of those domains, all possible paths from the local switch.
- For each path - cost, the number of hops from the local switch to the destination switch, and a summary of all ports are routed through that path.

A path is described by the output port that a frame addressed to a certain domain will be forwarded to by the switches' routing hardware, in order to reach the domain.

With the domain number specified, this command displays the topology information for the specified destination domain.

The display contains the following fields:

Local Domain ID	Domain number of local switch.
Domain	Domain number of destination switch.
Metric	Cost of reaching destination domain.
Name	The name of the destination switch.
Path Count	The number of currently active paths to the destination domain.

Hops	The maximum number of hops to reach destination domain.
Out Port	Port that incoming frame will be forwarded to, in order to reach the destination domain.
In Ports	Input ports that use the corresponding Out Port to reach the destination domain. This is the same information provided by `portRouteShow` and `uRouteShow`.
Total Bandwidth	The maximum bandwidth of the out port.
Bandwidth Demand	The maximum bandwidth demand by the in ports.
Flags	Always "D," indicating a dynamic path. A dynamic path is discovered automatically by the FSPF path selection protocol.

Operands

This command has the following operand:

domainnumber	Specify the destination domain for which topology information is to be displayed. This operand is optional. When no domain number is specified, this command displays the topology information of all the domains in the fabric.

Examples

The following is a V3.1.x example:

```
switch:admin> topologyshow

11 domains in the fabric; Local Domain ID: 7

Domain   Metric   Hops   Out Port   In Ports   Flags   Bandwidth   Name
------------------------------------------------------------------------
   2      2000      4        0     0x00000000    D      2 (Gbs)   "web131"

Type <CR> to continue, Q<CR> to stop:

   4      1500      3        0     0x00000000    D      2 (Gbs)   "web188"

Type <CR> to continue, Q<CR> to stop:
```

The following is a V4.1.x example:

```
switch:admin> topologyShow

2 domains in the fabric; Local Domain ID: 1
Domain:         6
Metric:         500
Name:           cylon218
Path Count:     4
        Hops:                   1
        Out Port:               60
        In Ports:               None
        Total Bandwidth:        2 Gbps
        Bandwidth Demand:       0 %
        Flags:                  D

        Hops:                   1
        Out Port:               61
        In Ports:               None
        Total Bandwidth:        2 Gbps
        Bandwidth Demand:       0 %
        Flags:                  D

        Hops:                   1
        Out Port:               62
        In Ports:               None
        Total Bandwidth:        2 Gbps
        Bandwidth Demand:       0 %
        Flags:                  D

        Hops:                   1
        Out Port:               58
        In Ports:               None
        Total Bandwidth:        2 Gbps
        Bandwidth Demand:       0 %
        Flags:                  D
```

See Also

portRouteShow

uRouteShow

trackChangesHelp

Displays information on track-changes feature commands.

Synopsis

```
trackchangeshelp
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display information about the track-changes commands.

Operands

None.

Example

To display information on the track-changes feature commands:

```
switch:admin> trackchangeshelp
trackChangesSet    Configure alert for login/logout/config update
trackChangesShow   Displays status of track changes
```

See Also

trackchangesset

trackchangesshow

trackChangesSet

Enable configuring of track-changes feature.

Synopsis: V3.1.x

`trackChangesSet` *`[mode], [snmptrapmode]`*

Synopsis: V4.1.x

`trackChangesSet` *`[mode][,snmptrapmode]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command enables or disables the track-changes feature. An SNMP-TRAP mode can also be enabled. Trackable changes are:

- Successful login
- Unsuccessful login
- Logout
- Config file change from task
- Track-changes on
- Track-changes off

The output from the track-changes feature is dumped to the error log for the switch. Use the `errDump` command or `errShow` command to view the error log.

Operands

This command has the following operands:

mode	Specify 1 to enable the track-changes feature or specify 0 to disable the feature. The default (if no operand is specified) is to disable the track-changes feature. This operand is optional.
snmptrapmode	Specify 1 to enable errors to be sent to the SNMP-TRAP in addition to the errlog or specify 0 to disable the SNMP-TRAP messages. The default (if no operand is specified) is to disable SNMP-TRAP messages. This operand is optional.

Example

To set the track changes feature in (V3.1.x example):

```
switch:admin> trackchangesset 1, 1
0x10276600 (tShell): Sep 12 17:59:10
INFO TRACK-TRACK_ON, 4, Track-changes on

Committing configuration...done.
0x10276600 (tShell): Sep 12 17:59:13
INFO TRACK-CONFIG_CHANGE, 4, Config file change from task:tShell
switch:admin>
```

The following shows how to use this command in (V4.1.x example):

```
switch12k:admin> trackchangesset 1, 1
Committing configuration...done.
switch12k:admin> trackchangesshow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
switch12k:admin>
```

See Also

agtcfgSet

agtcfgShow

trackChangesHelp

trackChangesShow

trackChangesShow

Displays status of track-changes feature.

Synopsis

```
trackChangesShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display status of the track-changes feature. It shows if the feature is turned on or off and if SNMP traps are generated.

The output from the track-changes feature is dumped to the error log for the switch. Use the `errDump` command or `errShow` command to view the error log.

Operands

None.

Example

To display the status of the track-changes feature:

```
switch:admin> trackChangesShow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
```

See Also

trackChangesHelp

trackChangesSet

trunkDebug

Debug a trunk link failure.

Synopsis

`trunkDebug` *`port1, port2`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to debug a trunk link failure. This command reports one of the following messages based on the trunking properties of the two specified ports:

- Switch does not support trunking
- Trunking license required
- port x is not E_Port
- port x trunking disabled
- port x peed is not 2G
- port x and port y are not on same quad
- port x and port y connect to different switches
- port x is not Trunking port due to: E_Port being disabled, or trunking may be disabled at remote port
- port x and port y cannot trunk, please check link length to make sure difference is less than 400 m

Operands

This command has the following operands:

port1	For V3.1.x, specify the first port number of a trunk connection where you want to debug a trunking link error. For V4.1.x, use the area number to specify port1. Use the `switchshow` command to view the area numbers for a port. This operand is required.
port2	For V3.1.x, specify the second port number of a trunk connection where you want to debug a trunking link error. For V4.1.x, use the area number to specify port2. Use the `switchshow` command to view the area numbers for a port. This operand is required.

Example

To debug a trunk connection:

```
switch:admin> trunkdebug 5,6
port 5 and 6 connect to different switches
port 5 connecting to switch 10:00:00:60:69:50:02:81
port 6 connecting to switch 10:00:00:60:69:80:0f:bd
switch:admin>
```

See Also

portCfgTrunkport

switchCfgTrunk

trunkShow

trunkShow

Displays trunking information.

Synopsis

```
trunkShow
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display trunking information. The fields displayed are as follows:

Trunking Group Number	Displays each trunking group on a switch. All the ports that are part of this trunking group are displayed.
Port to port connections	Displays the port-to-port trunking connections.
WWN	Displays the WWN of the connected port.
deskew	Displays the single trip time difference between trunked links. Each number corresponds to 10 ns.
Master	Displays whether this trunking port connection is the master port connection for the trunking group.

Operands

None.

Example

To display trunking information for a switch:

```
switch:admin> trunkShow
1: 1 ->  1   10:00:00:60:69:04:10:83   deskew 16   MASTER
   0 ->  0   10:00:00:60:69:04:10:83   deskew 55
2: 4 ->  4   10:00:00:60:69:04:01:94   deskew 45   MASTER
   5 ->  5   10:00:00:60:69:04:01:94   deskew 34
   7 ->  7   10:00:00:60:69:04:01:94   deskew 22
   6 ->  6   10:00:00:60:69:04:01:94   deskew 65
3:14 -> 14   10:00:00:60:69:04:10:83   deskew 46   MASTER
  15 -> 15   10:00:00:60:69:04:10:83   deskew 33
```

See Also

portCfgTrunkport

switchCfgTrunk

tsclockserver

Displays or sets the NTP Server address.

Synopsis

`tsclockserver` *`[ipaddr]`*

Availability

All users (display).

Admin (set).

Release

V3.1.x and V4.1.x

Description

Use this command to synchronize the local time of the Principal or Primary FCS switch to an external NTP server.

The Time Server daemon synchronizes fabric time by sending updates of the Principal or Primary FCS local switch time periodically to every switch in the fabric. The Time Server daemon runs on all switches in the fabric, but only the Principal switch (when the Security feature not enabled), or the Primary FCS switch (when the Security feature is enabled) connect to the NTP server, and broadcast Time Service updates.

All switches in the fabric maintain the current clock server IP address in non-volatile memory. By default this value is “LOCL.” Changes to the clock server IP address on the Principal or Primary FCS switch are propagated to all switches in the fabric.

Use this command with no parameters to display the current clock server IP address being used. Specify the `ipaddr` operand to set the clock server IP address, and enable fabric wide clock synchronization with the specified clock server.

The NTP server used MUST support a full NTP client. Fabric OS V3.1.x and v2.6.1 have an SNTP client and hence will accept an SNTP or NTP server, but V4.1.x has an NTP client. So for the proper functioning of a mixed fabric with external time synchronization it is necessary that an NTP server that supports a full NTP client be used.

The `ipaddr` specified should be the IP address of an NTP server and should be accessible from the switch. When a clock server IP address other than LOCL is specified but is not used by the fabric, a warning is displayed and logged. When a clock server IP address other than LOCL is specified, the `date` command will be restricted to display only. See the `date` command for more details.

Operands

This command has the following operand:

`ipaddr`	Specify the IP address of the NTP server. This operand is optional. By default this value is "LOCL."

If no operand is specified the current value is displayed.

Example

The following example shows how to display the current clock server value (LOCL), set the value to an NTP server at the specified IP address, and then verify that the new IP address was saved:

```
switch:admin> tsclockserver
LOCL
switch:admin> tsclockserver "11.22.33.44"
switch:admin> tsclockserver
11.22.33.44
switch:admin>
```

See Also

date

tshelp

Displays the time service commands.

Synopsis

```
tshelp
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display a list of time service commands.

Operands

None.

Example

To display a list of time service commands:

```
switch:admin> tshelp

tsTimeZone              Set time zone
tsClockServer           Set/Get External NTP Server address

NOTE: don't run help command after firmwaredownload without reboot.
It will give you wrong information.

switch:admin>
```

See Also

None.

tstimezone

Displays or sets the system time zone.

Synopsis

`tstimezone` *`[hourOffset [, minuteOffset]]`*

Availability

All users (display).

Admin (set).

Release

V3.1.x and V4.1.x

Description

Use this command to display or set the system time zone.

All switches maintain the current time zone setup in non-volatile memory. Changing the Time Zone on a switch updates the local time zone setup and is reflected in local time calculations.

All switches are by default in the 0,0 time zone, that is GMT. If all switches in a fabric are in one time zone, it is possible to leave the time zone setup at the default.

Time zone is used only in computing local time which is used for error reporting and logging. An incorrect time zone setup will not affect the switch operation in any way.

Enter this command with no parameters, to display the time zone setup. With the valid parameters, it sets the time zone for an individual switch.

Negative hourOffset values mean the local time is behind GMT.

Example: -8,0 is GMT-08:00

Positive hourOffset values mean the local time is ahead of GMT.

Example: 3, 0 is GMT+03:00

Operands

This command has the following operands:

hourOffset	Specify the number of hours relative to GMT. This operand must be specified as an integer. Valid values are -12 through 12. This operand is optional.
minuteOffset	Specify the number of minutes relative to the `hourOffset`. This operand must be specified as an integer. Valid values are -30, 0, or 30. This operand is optional.

Example

To display the current time zone setup, then changes them to GMT-3:30:

```
switch:admin> tsTimeZone
Time Zone Hour Offset: 0
Time Zone Minute Offset: 0
switch:admin> tsTimeZone -3, -30
switch:admin> tsTimeZone
Time Zone Hour Offset: -3
Time Zone Minute Offset: -30
```

See Also

date

turboRamTest

Turbo SRAM logic test for 2-Gbps ASICs.

Synopsis: V3.1.x

`turboramtest` *`[passcount]`*

Synopsis: V4.1.x

`turboramtest` *`[--slot number][-passcnt count][-ports itemlist]`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

This command verifies the on-chip SRAM located in the 2-Gb ASIC using the Turbo-Ram BIST circuitry. These same SRAMS are tested by `portRegTest` and `sramRetentionTest` using PCI operations, but for this test the BIST controller is able to perform the SRAM write and read operations at a much faster rate. It is also able to test one SRAM in each quadrant of every chip in parallel.

The following RAMs/CAMs are tested using TurboRAM test logic:

- TX Buffer List Descriptor RAM
- TX Q Arb Loop FIFO RAM
- Statistics RAM
- ALPA Match RAM
- External Unicast Routing Table RAM
- Internal Unicast Routing Table RAM
- Multicast Routing Table RAM
- TX Buffer Link RAM

- RX Buffer Frame Tail RAM
- RX Buffer Frame Link RAM
- TX Buffer Descriptor RAM (Output/Input Frame Tracking, Buffer State)
- Private RAM
- Phantom CAM
- Phantom DID RAM
- Phantom ALPA RAM
- Frame Filtering Destination Group Table RAM
- Frame Filtering Source Group Table RAM
- Field Definition Block RAM
- Frame Filtering Destination CAM
- Frame Filtering Source CAM
- Special Memory RAM

The test flow for each SRAM is as follows:

1. Fill RAM with alternating FFFF 0000 pattern. (Subtest 1: turboram memory fill)
2. For each incrementing address read FFFF 0000 pattern and write 0000 FFFF. (Subtest 2: turboram r-m-w inc 1)
3. For each incrementing address read 0000 FFFF pattern and write FFFF 0000. (Subtest 3: turboram r-m-w inc 2)
4. For each decrementing address read FFFF 0000 pattern and write 0000 FFFF. (Subtest 4: turboram r-m-w dec 1)
5. For each decrementing address read 0000 FFFF pattern and write FFFF 0000. (Subtest 5: turboram r-m-w dec 2)
6. Repeat steps 1-5 with AAAA 5555 pattern.

Operands

This command has the following operands:

passcount (V3.1.x only)	Specify the number of times to perform this test. The default value is 1. This operand is optional.

--slot number (V4.1.x only)	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number. The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are switch cards. On each switch card, there are 16 ports counted from the bottom, 0 to 15. A particular port must be represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). This operand is not required for switches that do not have slots.
-passcnt count (V4.1.x only)	Specify the number of times to perform this test. The default value is 1. This operand is optional.
-ports itemlist (V4.1.x only)	Specify a list of blade ports to test. By default all the blade ports in the specified slot are tested. See the `itemlist` command help page for more information. This operand is optional.

Example

To execute this test (V3.1.x example):

```
switch:admin> turboRamTest
Running Turbo RAM Test ........ passed.
```

To execute this test (V4.1.x example):

```
switch:admin> > turboramtest -passcnt 2 -ports 2/0-2/63
Running Turbo RAM Test ........ passed.
```

Errors

When it detects failures, the subtest may report one or more of the following error messages:

```
DIAG-WTEST - Memory fill operation failed.
DIAG-INC_RWTEST - Memory r-m-w increment subtest failed.
DIAG-DEC_RWTEST - Memory r-m-w decrement subtest failed.
DIAG-RAMINIT_TO - Memory initialization timed out.
```

See Also

camtest
centralmemorytest
cmemretentiontest
cmitest
portregtest
ramtest
sramretentiontest

txdpathtest

Functional test of TXA and TXD connections.

Synopsis

`txdpathtest` *`[passcount, speedmode]`*

Availability

Admin

Release

V3.1.x

Description

Use this command to verify the TXA, TXD, and CMI data paths between the ASICs. This is done by configuring all of the ports for internal loopback and sending a frame from each quadrant to all other port on the switch. The frame starts from the CPU and is transmitted by the first port which also receives the frame and deposits it in central memory. The second port then reads the frame from central memory using its own TXA and TXD path. The frame is then looped back one more time and is sent back to the CPU where it is compared with the transmitted data.

Only one frame is transmitted and received at a time. An external cable is not required to run this test. The port sending frames displays a flickering green LED while the test is running. The test method is as follows:

1. Set all ports present for parallel loopback. Then for each pair of source quadrants and destination ports
2. Set up source port to route frames to destination port and destination port to route frames to CPU.
3. Transmit frame F via source port.
4. Pick up the frame from destination port.
5. Check if any of the 8 statistic error counters are non-zero:

   `ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet, DiscC3.`

6. Repeat steps 2 through 5 for all ports present until:
   a. The number of frames (or `passcount`) requested is reached,
   b. All ports are marked bad.

At each pass, a different data type is used to create the frame from a palette of 7; meaning if a pass of 7 is requested, 7 different frames are used in the test. If 8 passes, the first 7 frames are unique, and the 8th is the same as the first. The data palette of 7 are:

```
1)   CSPAT:       0x7e, 0x7e, 0x7e, 0x7e,...
2)   BYTE_LFSR:   0x69, 0x01, 0x02, 0x05,...
3)   CHALF_SQ:    0x4a, 0x4a, 0x4a, 0x4a,...
4)   QUAD_NOT:    0x00, 0xff, 0x00, 0xff,...
5)   CQTR_SQ:     0x78, 0x78, 0x78, 0x78,...
6)   CRPAT:       0xbc, 0xbc, 0x23, 0x47,...
7)   RANDOM:      0x25, 0x7f, 0x6e, 0x9a,...
```

Since this test requires that two ports can send and receive frames it is strongly suggested that you run `portloopbacktest` before attempting to run this test.

Operands

This command has the following operands:

passcount	Specify the number of times to perform this test. The default value is 0xfffffffe. This operand is optional.
speedmode	Specify the speed mode for the test. Valid values are 0, 1, or 2. This parameter is only used for 2-Gbps based products where it controls the speed at which each port is operated. For 1-Gbps only products it is ignored. 0 Run test at both 1-Gbps and 2-Gps (default). 1 Set all ports speed to lock at 1-Gbps. 2 Set all ports speed to lock at 2-Gbps.

Example

To run a functional test of TXA and TXD connections:

```
switch:admin> txdpathtest
Running Tx Data Path Test ..... passed.
```

Errors

When it detects failures, the test may report one or more of the following error messages:

```
DIAG-INIT
DIAG-PORTDIED
DIAG-XMIT
DIAG-TIMEOUT
DIAG-ERRSTAT
DIAG-STATS
DIAG-DATA
```

See Also

camtest

centralmemorytest

cmemretentiontest

cmitest

crossporttest

portloopbacktest

portregtest

ramtest

spinsilk

sramretentiontest

uptime

Displays length of time the system has been operational.

Synopsis

```
uptime
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the length of time the system has been in operation (also known as “up time”), the total cumulative amount of “up time” since the system was first powered-on, the date and time of the last reboot, and the reason for the last reboot.

For up and powered-on times less than 60 seconds, the time is displayed in seconds. For times greater than or equal to 60 seconds, the time is displayed in minutes. The output format adjusts accordingly.

The reason for the last switch reboot is also recorded in the error log. Reasons are listed below. Not all the below responses are applicable to all switch models:

Unknown	Reason is unknown.
Bus time-out*	Port ASIC was accessed and no response was received.
Bus error*	Non-existent system address was accessed.
Panic*	Firmware detected a critical hardware error or an internal inconsistency.
Fault*	CPU signaled a fault condition (critical firmware error).
Power-on	Last reboot was caused by a power-on.
Watchdog*	Watchdog timer caused a reset.
PushButtons	Push buttons 1 and 3 were depressed for two seconds, causing a system reset.

`Reboot`	Last reboot was caused by a user (from any management interface).
`Powerfail NMI*`	Power supply caused a nonmaskable interrupt.
`Watchdog NMI*`	Watchdog timer caused a nonmaskable interrupt.
`PushButton NMI*`	Push buttons 2 and 4 were depressed for two seconds, causing a nonmaskable interrupt.
`Software NMI*`	Firmware caused a nonmaskable interrupt.

Note: The items marked with an asterisk (*) are usually caused by hardware or firmware failures. Information on the failure is stored in the switch. Follow the procedures in the switch manual.

Operands

None.

Example

To display the uptime for a V3.1.x switch:

```
Switch:admin> uptime
Up for:      6 days,  1:34
Powered for: 69 days, 11:39
Last up at:  Wed Jan 30 09:10:09 2002
Reason:      Reboot
Switch:admin>
```

To display the length of time the system has been operational (V4.1.x example):

```
switch:admin> uptime
12:03am  up  4:56,  3 users,  load average: 1.17, 1.08, 1.08
```

See Also

date

errShow

fastboot

reboot

uRouteConfig

Configure a static route.

Synopsis

`uRouteConfig` *`InArea Domain OutArea`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to configure static routes. A static route is a route that is assigned to a specific path, and will not change when a topology change occurs, unless the path used by the route becomes unavailable.

After this command is issued, and if `OutArea` is a usable port, all frames coming in from `InArea` port addressed to `Domain` will be forwarded through `OutArea` port.

If `OutArea` port is not usable, then the routing assignment is not affected by this command. When `OutArea` port becomes usable again, the static route assignment for `InArea` is enforced.

`OutArea` port is usable if it is on a minimum cost path to the destination domain.

`InArea` port can be either an F_Port or an E_Port.

Note: When using static routes, load sharing may be affected. The switch attempts to achieve optimum load sharing, but if too many routes are statically configured to use the same output port, a fair load sharing may not be achievable.

In order to prevent routing loops, a static route configuration using a non-minimum cost path is not allowed. If an attempt is made to configure such a route, the user is queried on whether or not the entry should be saved in the database.

Operands

This command has the following operands:

InArea	Specify the port to be statically routed. This operand is required.
Domain	Specify the destination domain. This operand is required.
OutArea	Specify the output port where traffic is forwarded. This operand is required.

Examples

To configures a static route for all traffic coming in from port 1 and addressed to domain 2 to go through port 5:

```
switch:admin> uRouteConfig 1 2 5
done.
switch:admin> configShow
route.ucastRoute.1.2:    5
route.ucastRouteCount:   1
```

See Also

configShow

interfaceShow

uRouteRemove

uRouteShow

uRouteRemove

Remove a static route.

Synopsis

`uRouteRemove` *`InArea Domain`*

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to remove a previously configured static route.

After this command is issued, the route to `Domain` for `InArea` may or may not change. It changes if the previous static route was not along a minimum cost path. Also, after this command is issued, the load sharing to `Domain` is re-evaluated.

InArea can be either an F_Port or an E_Port.

Operands

This command has the following operands:

`InArea`	The port that is statically routed. This operand is required.
`Domain`	The destination domain. This operand is required.

Examples

To remove a static route for all traffic coming in from port 1 and addressed to domain 2:

```
switch:admin> uRouteRemove 1 2
done.
```

See Also

configShow
uRouteConfig
uRouteShow

uRouteShow

Displays unicast routing information.

Synopsis: V3.1.x

```
uRouteShow [portnumber][, domainnumber]
```

Synopsis: V4.1.x

```
uRouteShow [slotnumber/][portnumber][, domainnumber]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display the unicast routing information for a port, as it is known by the FSPF path selection and routing task. The routing information describes how a frame that is received from a port on the local switch is to be routed to reach a destination switch.

When no operand is specified, this command displays the routing information for all the active ports on the local switch, to all the domains in the fabric.

When only the slot number and port number are specified, this command displays the routing information for the specified port to all the domains connected to it.

When the slot number, port number, and domain number are all specified, this command only displays the routing information for the specified port to the specified domain.

The following information is displayed:

Local Domain ID:	Domain number of local switch.
In Port:	Port from which a frame is received.
Domain:	Destination domain of incoming frame.
Out Port:	Port to which the incoming frame is to be forwarded.

Metric:	Cost of reaching the destination domain.
Hops:	Maximum number of hops required to reach the destination domain.
Flags:	Indicates if route is dynamic (D) or static (S). A dynamic route is discovered automatically by the FSPF path selection protocol. A static route is assigned using the command `uRouteConfig`.
Next (Dom, Port):	Domain and port number of the next hop. These are the domain number and the port number of the switch to which *`Out Port`* is connected.

The information provided by this command should match what is provided by `portRouteShow` and `topologyShow`.

Operands

This command has the following operands:

`slotnumber` (V4.1.x only)	Specify the slot number for a StorageWorks Core switch. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The StorageWorks Core switch has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
`portnumber`	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.
`domainnumber`	Displays routing information for the specified domain. This operand is optional. This operand should only be specified when the port number is specified.

If no operand is specified, this command displays routing information for all active ports on the local switch, to all the domains in the fabric.

Examples

The first example displays the routing information of all the active ports, The second command displays the routing information of port 11 on slot 1, and the third command displays the routing information of port 11 to domain 4 only:

```
switch:admin> urouteshow
Local Domain ID: 3
In Port    Domain    Out Port    Metric    Hops    Flags    Next (Dom, Port)
-------------------------------------------------------------------------
 0          1         11        1000       1       D            1,0
11          2          0        1500       2       D            4,0
            4          0         500       1       D            4,0
16          1         27        1000       1       D            1,1
27          2         16        1500       2       D            4,16
            4          0         500       1       D            4,0

switch:admin> urouteshow 1/11
Local Domain ID: 3
In Port    Domain    Out Port    Metric    Hops    Flags    Next (Dom, Port)
-------------------------------------------------------------------------
 11          2         16        1500       2       D            4,16
             4         16         500       1       D            4,16

switch:admin> urouteshow 1/11, 4
        Local Domain ID: 3
In Port    Domain    Out Port    Metric    Hops    Flags    Next (Dom, Port)
-------------------------------------------------------------------------
11          4         16         500       1       D            4,16
```

See Also

portRouteShow

topologyShow

uRouteConfig

uRouteRemove

version

Displays firmware version information.

Synopsis

```
version
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display firmware version information and build dates.

The following fields are displayed:

Kernel:	Displays the version of switch kernel operating system.
Fabric OS:	Displays the version of switch Fabric OS.
Made on:	Displays the build date of firmware running in switch.
Flash:	Displays the build date of firmware stored in flash PROMs.
BootProm:	For V3.1.x, this field displays the build date of firmware stored in boot PROM For V4.1.x, this field displays the version of the firmware stored in the boot PROM.

Usually the Made on and Flash dates are the same, since the switch starts running flash firmware at power-on. However, in the time period between `firmwareDownload` and the next reboot, the dates can differ.

Operands

None.

Example

The following example shows the firmware version information on a StorageWorks Core switch:

```
switch:admin> version
Kernel:     2.4.2
Fabric OS:  V4.1.x
Made on:    Fri Feb 1 23:02:08 2002
Flash:      Fri Feb 1 18:03:35 2002
BootProm:   3.1.13b
switch:admin>
```

See Also

firmwareDownload

reboot

wwn

View a switch WWN.

Synopsis

```
wwn
```

Availability

For V3.1.x: All users.

For V4.1.x:

- Factory or Root only (set).
- All users (display).

Release

V3.1.x and V4.1.x

Description

Use this command to modify or display the WWN of a switch. All switches have a numeric address that is the unique Fibre Channel address used for communicating with the switch. The WWN is shown in the output of the `switchShow` command.

This command with no parameters displays the current WWN value.

This command with a parameter sets the switch's WWN to the new value. WWN names must have eight colon separated fields each consisting of 1 or 2 hexadecimal digits between 0 and off, with no spaces.

After the world wide name is changed, the user is prompted to reboot the switch. The name will not take effect until the switch restarts.

Note: When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

None.

Example

To display the switch WWN:

```
switch:admin> wwn
10:00:00:60:69:00:54:e9

switch:admin>
```

See Also

switchShow

zoneAdd

Add a member to the zone.

Synopsis

```
zoneAdd "zoneName", "member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to add one or more members to an existing zone.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgsave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgenable` command.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

The following operands are required:

zoneName	Specify the name of an existing zone, in quotation marks. This operand is required.
member	Specify a member or list of members to be added, in quotation marks, separated by semicolons. Valid values can be one or more of the following: ■ For V3.1.x, a switch domain and physical port number pair. For example, "2, 12." ■ For V4.1.x, a switch domain and port area number pair. For example, "2, 20." View the area numbers for ports using the `switchShow` command. ■ Node or port WWN. ■ QuickLoop AL_PA. ■ Zone alias name.

Example

To add aliases for three disk arrays to "Blue_zone":

```
switch:admin> zoneAdd "Blue_Zone", "array3; array4; array5"
```

See Also

zoneCreate

zoneDelete

zoneRemove

zoneShow

zoneCreate

Create a zone.

Synopsis

```
zoneCreate "zoneName", "member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to create a new zone.

Note: This command requires an Advanced Zoning license.

A zone name is a C-style name beginning with a letter and followed by any number of letters, digits, and underscore characters. Names are case sensitive; for example, “Zone_1” indicates a different zone than “zone_1”. Blank spaces are ignored.

The zone member list must have at least one member (empty lists are not allowed). The members are described by a list of member definitions separated by semicolons.

Specify ports by domain and port area number. The values are entered as a pair of numbers “s,p” where "s" is the switch number (domain ID) and “p” is the port area number. For example, “2, 20” specifies port area number 20 on switch domain 2. When a zone member is specified by port area number, then all devices connected to that port are in the zone. If this port is an arbitrated loop, then all devices on the loop are in the zone.

Specify a *World Wide Name* as eight hex numbers separated by colons, for example, “10:00:00:60:69:00:00:8a.” Advanced Zoning has no knowledge of the fields within a World Wide Name; the eight bytes are simply compared with the

Node and Port Names presented by a device in a login frame (FLOGI or PLOGI). When a zone member is specified by Node Name, then all ports on that device are in the zone. When a zone member is specified by Port Name, then only that single device port is in the zone.

Specify a *QuickLoop AL_PA* as a QuickLoop name followed by a list of AL_PAs, for example, "qloop1[01,02]." QuickLoop names have the same format as zone names, and are created with the `qloopCreate` command to define a switch or pair of switches that form the QuickLoop.

Specify a zone alias name using the same format as a zone name. It is created with the `aliCreate` command. The alias must resolve to a list of one or more of the following:

- A switch domain and port area number pair. View the area numbers for ports using the `switchShow` command.
- World Wide Names
- QuickLoop AL_PAs

The types of zone members used to define a zone may be mixed. For example, a zone defined with the following members: "2,12; 2,14; 10:00:00:60:69:00:00:8a" would contain all devices connected to switch 2, ports 12 and 14, and to the device with the World Wide Name "10:00:00:60:69:00:00:8a" (either node name or port name), at the port in the fabric to which it is connected.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgsave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgenable` command.

Note: Use this command to create a "broadcast" zone. This is a special zone used to specify those nodes that can receive broadcast traffic. Broadcast traffic is usually meant for servers and not for storage devices. This zone must be named "broadcast." Only one "broadcast"" zone can exist within a fabric. This type of zone is hardware enforced; the switch controls data transfer to a port.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

The following operands are required:

zoneName	Name for a zone to be created, in quotation marks. This name cannot be used for any other zone object.
member	List of members to be included in zone, in quotation marks, separated by semicolons. Can be one or more of the following: ■ For V3.1.x, a switch domain and physical port number pair. For example, "2, 12." ■ For V4.1.x, a switch domain and port area number pair. For example, "2, 20" View the area numbers for ports using the `switchShow` command. ■ World Wide Names ■ QuickLoop AL_PAs ■ Zone alias names

Example

To create three zones using a combination of port numbers and zone aliases:

```
switch:admin> zoneCreate "Red_zone", "1,0; loop1"
switch:admin> zoneCreate "Blue_zone", "1,1; array1; 1,2; array2"
switch:admin> zoneCreate "Green_zone", "1,0; loop1; 1,2; array2"
```

See Also

zoneAdd

zoneDelete

zoneRemove

zoneShow

zoneDelete

Delete a zone.

Synopsis

```
zoneDelete "zoneName"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to delete a zone.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgsave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgenable` command.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

This command has the following operand:

zoneName	Name of the zone to be deleted, in quotation marks. This operand is required.

Example

To delete the zone “Blue_zone”:

```
switch:admin> zoneDelete “Blue_zone”
```

See Also

zoneAdd
zoneCreate
zoneRemove
zoneShow

zoneHelp

Displays help information on zone commands.

Synopsis

```
zoneHelp
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display help information on zone commands.

Operands

None.

Example

To display zone command help information:

```
switch:admin> zonehelp

aliAdd                  Add a member to a zone alias
aliCreate               Create a zone alias
aliDelete               Delete a zone alias
aliRemove               Remove a member from a zone alias
aliShow                 Print zone alias information

cfgAdd                  Add a member to a configuration
cfgCreate               Create a zone configuration
cfgDelete               Delete a zone configuration
cfgRemove               Remove a member from a configuration
cfgShow                 Print zone configuration information

qloopAdd                Add a member to a qloop
qloopCreate             Create a qloop
qloopDelete             Delete a qloop
qloopRemove             Remove a member from a qloop
qloopShow               Print qloop information

zoneAdd                 Add a member to a zone
zoneCreate              Create a zone
zoneDelete              Delete a zone
zoneRemove              Remove a member from a zone
zoneShow                Print zone information

fazoneAdd               Add a member to a fabric assist zone
fazoneCreate            Create a fabric assist zone
fazoneDelete            Delete a fabric assist zone
fazoneRemove            Remove a member from a fabric assist zone
fazoneShow              Print Fabric Assist Zone information

cfgClear                Clear all zone configurations
cfgDisable              Disable a zone configuration
cfgEnable               Enable a zone configuration
cfgSave                 Save zone configurations in flash

cfgSize                 Print size details of zone database
cfgActvShow             Print effective zone configuration
cfgTransAbort           Abort zone configuration transaction
cfgTransClearFlag       Clear block new transaction flag

switch:admin>
```

See Also

None.

zoneRemove

Remove a member from a zone.

Synopsis

```
zoneRemove "zoneName", "member;member"
```

Availability

Admin

Release

V3.1.x and V4.1.x

Description

Use this command to remove one or more members from an existing zone.

The member list is located by an exact string match; therefore, it is important to maintain the order when removing multiple members. For example, if a zone contains “array2; array3; array4,” removing “array3; array4” succeeds. but removing “array4; array3” fails.

If all members are removed, the zone is deleted.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgsave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgenable` command.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See “Security Commands” on page 941.

Operands

The following operands are required:

zoneName	Name of the zone, in quotation marks.
member	List of members to be removed from zone, in quotation marks, separated by semicolons. Can be one or more of the following: ■ For V3.1.x, a switch domain and physical port number pair. For example, "2, 12." ■ For V4.1.x, a switch domain and port area number pair. For example, "2, 20" View the area numbers for ports using the `switchShow` command. ■ World Wide Names ■ QuickLoop AL_PAs ■ Zone alias names

Example

To remove "array2" from "Blue_zone":

```
switch:admin> zoneRemove "Blue_zone", "array2"
switch:admin> zoneRemove "Blue_zone", "2,20"
```

See Also

zoneAdd

zoneCreate

zoneDelete

zoneShow

zoneShow

Displays zone information.

Synopsis

```
zoneShow ["pattern"][, mode]
```

Availability

All users.

Release

V3.1.x and V4.1.x

Description

Use this command to display zone configuration information.

If no parameters are specified, all zone configuration information (both defined and enabled) is displayed. See `cfgShow` for a description of this display.

If a parameter is specified, it is used as a pattern to match zone configuration names, and those that match in the defined configuration are displayed.

Note: This command requires an Advanced Zoning license.

When security is enabled, this command can only be issued from the Primary FCS switch. See "Security Commands" on page 941.

Operands

The following operands are optional:

pattern — A POSIX style regular expression used to match zone configuration names. The pattern must be enclosed in quotation marks. Patterns may contain:

- Question mark "?" that matches any single character
- Asterisk "*" that matches any string of characters
- Ranges "[0-9a-f]" that match any character within the range

mode — For V3.1.x, specify 1 to display the contents of the transaction buffer, or specify 0 to display the contents of the RAM. The default value is 0.

For V4.1.x, specify 0 to display the contents of the transaction buffer (the contents of the current transaction), or specify 1 to display the contents of the non-volatile memory. The default value is 0. This operand is optional.

Example

To show all zones beginning with the letters "A" through "C":

```
switch:admin> zoneShow "[A-C]*"
zone: Blue_zone 1,1; array1; 1,2; array2
```

See Also

zoneAdd

zoneCreate

zoneDelete

zoneRemove

Fabric OS Commands for Licensed Products

2

This chapter summarizes the commands that are only available with a license key.

- Advanced Zoning Commands, page 900
- QuickLoop Fabric Assist Mode Commands, page 902
- Extended Fabric Command, page 903
- Fabric Watch Commands, page 904
- Trunking Commands, page 905
- Advanced Performance Monitoring Commands, page 906
- Secure Fabric OS Commands, page 908

Note: For more information about Zoning, QuickLoop, Extended Fabrics, Fabric Watch, Trunking, or Performance Monitoring refer to the specific user guide for that feature.

Advanced Zoning Commands

The following commands are available with the purchase of an Advanced Zoning license key. For detailed information about zoning refer to the *HP StorageWorks Zoning Version 3.1.x/4.1.x User Guide*.

Table 18: Zoning Commands

Command	Description
Zone Alias	
`aliAdd`	Add a member to a zone alias.
`aliCreate`	Create a zone alias.
`aliDelete`	Delete a zone alias.
`aliRemove`	Remove a member from a zone alias.
Zoning	
`zoneAdd`	Add a member to a zone.
`zoneCreate`	Create a zone.
`zoneDelete`	Delete a zone.
`zoneRemove`	Remove a member from a zone.
QuickLoop Zoning	
`qloopAdd`	Add a member to a QuickLoop.
`qloopCreate`	Create a QuickLoop.
`qloopDelete`	Delete a QuickLoop.
`qloopRemove`	Remove a member from a QuickLoop.
Zone Configuration	
`cfgAdd`	Add a zone to a zone configuration.
`cfgCreate`	Create a zone configuration.
`cfgDelete`	Delete a zone configuration.
`cfgRemove`	Remove a zone from a zone configuration.

Table 18: Zoning Commands (Continued)

Command	Description
Zone Management	
`cfgClear`	Clear all zone configurations.
`cfgDisable`	Disable a zone configuration.
`cfgEnable`	Enable a zone configuration.
`cfgSave`	Save zone configurations in flash memory.
`cfgTransAbort`	Aborts the current zoning transaction.

QuickLoop Fabric Assist Mode Commands

The following commands are for QuickLoop Fabric Assist Mode. For detailed information about Extended Fabrics refer to the *HP StorageWorks QuickLoop Fabric Assist Version 3.1.x User Guide*.

Table 19: QuickLoop Fabric Assist Mode Commands

Command	Description
`fazoneAdd`	Add members to an existing QuickLoop Fabric Assist zone.
`fazoneCreate`	Create a QLFA zone.
`fazoneDelete`	Delete an existing QuickLoop Fabric Assist zone.
`fazoneRemove`	Remove member or members from an existing QuickLoop Fabric Assist zone.

Note: The Quickloop Fabric Assist Mode feature is available on Fabric OS V3.1.x only.

Extended Fabric Command

The following command is available with the purchase of an Extended Fabrics license key. For detailed information about Extended Fabrics refer to the *HP StorageWorks QuickLoop Fabric Assist Version 3.1.x User Guide*.

Table 20: Extended Fabric Command

Command	Description
`portCfgLongDistance`	Configure a port to support long distance links.

Fabric Watch Commands

The following commands are available with the purchase of a Fabric Watch license key. For detailed information about Fabric Watch refer to the *HP StorageWorks Fabric Watch Version 3.1.x/4.1.x User Guide*.

Table 21: Fabric Watch Commands

Command	Description
`fwClassInit`	Initialize all classes under Fabric Watch.
`fwConfigReload`	Reload the Fabric Watch configuration.
`fwConfigure`	Display and enable modification of the Fabric Watch configuration and status.
`fwShow`	Display the thresholds monitored by Fabric Watch.
`fwAlarmsFilterSet`	Enable or disable alarms for Fabric Watch.
`fwAlarmsFilterShow`	Display alarm filtering for Fabric Watch.
`fwFruCfg`	Display and change FRU state alert configuration.
`fwMailCfg`	Configure e-mail alerts in Fabric Watch.
`fwSetToDefault`	Set boundary and alarm levels to the default values.
`fwSetToCustom`	Set boundary and alarm levels to custom values.

Trunking Commands

The following commands are available with the purchase of a Trunking license key. For detailed information about trunking refer to the *HP StorageWorks ISL Trunking Version 3.1.x/4.1.x User Guide*.

Table 22: Trunking Commands

Command	Description
`portCfgTrunkport`	Configure a port for trunking.
`switchCfgTrunk`	Configure a switch for trunking.
`trunkDebug`	Debug a trunk link failure.

Advanced Performance Monitoring Commands

The following commands are available with the purchase of an Advanced Performance Monitoring license key. For more detailed information about Performance Monitoring refer to the *HP StorageWorks Advanced Performance Monitoring Version 3.1.x/4.1.x User Guide*.

Table 23: Performance Monitoring Commands

Command	Description
`perfAddEEMonitor`	Add an end-to-end monitor to a port.
`perfAddIPMonitor`	Add an IP monitor to a port.
`perfAddReadMonitor`	Add a SCSI Read monitor to a port.
`perfAddRWMonitor`	Add a SCSI Read and Write monitor to a port.
`perfAddSCSIMonitor`	Add a SCSI traffic frame monitor to a port.
`perfAddUserMonitor`	Add a user-defined monitor to a port.
`perfAddWriteMonitor`	Add a SCSI Write monitor to a port.
`perfCfgClear`	Clear the performance monitoring settings from flash memory.
`perfCfgRestore`	Restore performance monitoring settings from flash memory.
`perfCfgSave`	Save the current performance monitoring settings to flash memory.
`perfcleareemonitor`	Clear statistics counters of an end- to-end monitor on a port.
`perfclearfiltermonitor`	Clear statistics counters of a filter-based monitor.
`perfClrAlpaCrc`	Clear an AL_PA device CRC count by the port and AL_PA.
`perfDelEEMonitor`	Delete an end-to-end monitor on port.
`perfDelFilterMonitor`	Delete a filter-based monitor.
`perfSetPortEEMask`	Set overall mask for end-to-end (EE) monitors.
`perfShowAlpaCrc`	Display the AL_PA CRC count by port or by AL_PA.

Table 23: Performance Monitoring Commands (Continued)

Command	Description
`perfShowEEMonitor`	Display user-defined end-to-end monitors on a port.
`perfShowFilterMonitor`	Display filter-based monitors for a port.
`perfShowPortEEMask`	Display the current end-to-end mask of a port.

Secure Fabric OS Commands

The following commands are available with the purchase of a Security license key. For more detailed information about trunking refer to the *HP StorageWorks Secure Fabrics OS Version 1.0 User Guide*.

Table 24: Secure Fabric OS Commands

Command	Description
`secfabricshow`	Displays security related fabric information.
`secfcsfailover`	Enables a Backup FCS switch to take over as Primary FCS switch.
`sechelp`	Display information about security telnet commands.
`secmodeenable`	Enable security mode.
`secmodedisable`	Disable security mode.
`secmodeshow`	Display if security mode is enabled or disabled.
`secnonfcspasswd`	Set the admin password for non-FCS switches.
`secpolicyabort`	Aborts all changes to the defined database that have not been saved.
`secpolicyactivate`	Apply defined policy set to all switches in the fabric.
`secpolicyadd`	Add members to an existing policy.
`secpolicycreate`	Create a new policy.
`secpolicydelete`	Delete an existing policy.
`secpolicydump`	Show all members of existing policies.
`secpolicyfcsmove`	Move a member in the FCS policy.
`secpolicyremove`	Remove members from an existing policy.
`secpolicysave`	Save a defined security policy to flash memory on all switches in the fabric.
`secpolicyshow`	Show an existing security policy.
`secstatsreset`	Reset security statistic for a policy or all policies to zero.
`secstatsshow`	Display security statistic for a policy or for all policies.
`sectemppasswdreset`	Reset a password on a remote switch.

Table 24: Secure Fabric OS Commands (Continued)

Command	Description
`sectemppasswdset`	Set a temporary password on a remote switch.
`sectransabort`	Abort current security transaction.
`secversionreset`	Reset the version stamp to zero.

Fabric OS Version Comparison

3

This chapter summarizes the commands available in V3.1.x and V4.1.x.

Command Differences Between Versions

This table provides a list of which commands are available in V3.1.x and in V4.1.x. It also provides notes on differences that may exist for a particular command between versions.

Table 25: Fabric OS Command Version Support (Sheet 1 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
agtcfgDefault	Yes	Yes	
agtcfgSet	Yes	Yes	
agtcfgShow	Yes	Yes	
aliasDelete	No	Yes	New command for V4.1.x
aliasJoin	No	Yes	New command for V4.1.x
aliasPurge	No	Yes	New command for V4.1.x
aliasShow	Yes	Yes	New command
aliAdd	Yes	Yes	Specify members using area number in V4.1.x
aliCreate	Yes	Yes	Specify members using area number in V4.1.x
aliDelete	Yes	Yes	
aliRemove	Yes	Yes	Specify members using area number in V4.1.x
aliShow	Yes	Yes	
backplanetest	No	Yes	Specific to the StorageWorks Core switch
backPort	No	Yes	Specific to the StorageWorks Core switch
backSpace	Yes	No	
bannerset	Yes	Yes	New command
bannershow	Yes	Yes	New command
bcastShow	Yes	Yes	
bladeBeacon	No	Yes	Specific to the StorageWorks Core switch
bladeDiag	No	Yes	Specific to the StorageWorks Core switch

Table 25: Fabric OS Command Version Support (Sheet 2 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
bladeDiagShort	No	Yes	Specific to the StorageWorks Core switch
bladeDisable	No	Yes	New command for V4.1.x
bladeEnable	No	Yes	New command for V4.1.x
bladePropShow	No	Yes	Specific to the StorageWorks Core switch
bsn	Yes	No	Functionality was replaced by the chassisshow command in V4.1.x.
camTest	Yes	Yes	Not supported with the StorageWorks Core switch
centralMemoryTest	Yes	Yes	
cfgAdd	Yes	Yes	
cfgClear	Yes	Yes	
cfgCreate	Yes	Yes	
cfgDelete	Yes	Yes	
cfgDisable	Yes	Yes	
cfgEnable	Yes	Yes	
cfgRemove	Yes	Yes	
cfgSave	Yes	Yes	
cfgShow	Yes	Yes	
cfgsize	Yes	Yes	New command
cfgTransAbort	Yes	Yes	
cfgtransshow	Yes	Yes	New command
chassisName	No	Yes	Specific to the StorageWorks Core switch
chassisShow	No	Yes	Specific to the StorageWorks Core switch
chippropshow	No	Yes	
chipregshow	No	Yes	
cmemRetentionTest	Yes	Yes	

Table 25: Fabric OS Command Version Support (Sheet 3 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
cmiTest	Yes	Yes	
configDefault	Yes	Yes	
configDownload	Yes	Yes	
configShow	Yes	Yes	
configUpload	Yes	Yes	
configure	Yes	Yes	
crossPortTest	Yes	Yes	
dataTypeShow	Yes	Yes	
date	Yes	Yes	
dbgshow	Yes	Yes	New command
diagClearError	Yes	Yes	
diagCommandShow	No	Yes	
diagDisablePost	Yes	Yes	
diagEnablePost	Yes	Yes	
diagesdPorts	No	Yes	
diagfailLimit	No	Yes	
diagHelp	Yes	Yes	
diagloopid	No	Yes	
diagmodepr	No	Yes	
diagpost	No	Yes	
diagretry	No	Yes	
diagsetburnin	No	Yes	
diagsetcycle	No	Yes	
diagShow	Yes	Yes	
diagshowtime	No	Yes	
diagsilkworm	No	Yes	
diagskiptests	No	Yes	
diagstopburnin	No	Yes	

Table 25: Fabric OS Command Version Support (Sheet 4 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
dlsReset	Yes	Yes	
dlsSet	Yes	Yes	
dlsShow	Yes	Yes	
dnsconfig	Yes	Yes	
errclear	Yes	Yes	
errDump	Yes	Yes	
errnvlogsizeset	No	Yes	New command for V4.1.x
errnvlogsizeshow	No	Yes	New command for V4.1.x
errsavelvlset	No	Yes	New command for V4.1.x
errsavelvlshow	No	Yes	New command for V4.1.x
errShow	Yes	Yes	
exit	Yes	Yes	New command
fabportshow	No	Yes	New command for V4.1.x
fabretryshow	Yes	Yes	New command
fabricprincipal	No	Yes	New command for V4.1.x
fabricshow	No	Yes	New command for V4.1.x
fabstateclear	No	Yes	New command for V4.1.x
fabStateShow	No	Yes	
fabstatsshow	Yes	Yes	New command for V4.1.x
fabswitchshow	No	Yes	New command for V4.1.x
fanDisable	No	Yes	
fanEnable	No	Yes	
fanshow	Yes	Yes	
faShow	Yes	No	New command for V3.1.x
fastatsshow	Yes	Yes	
fastboot	Yes	Yes	
fazoneAdd	Yes	Yes	Specify members using area number in V4.1.x

Table 25: Fabric OS Command Version Support (Sheet 5 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
fazoneCreate	Yes	Yes	Specify members using area number in V4.1.x
fazoneDelete	Yes	Yes	
fazoneRemove	Yes	Yes	Specify members using area number in V4.1.x
fazoneShow	Yes	Yes	
fcpprobeshow	Yes	Yes	New command for V3.1.x
fcprlsshow	Yes	Yes	New command for V3.1.x
fdmicacheshow	Yes	Yes	New command for V3.1.x
fdmishow	Yes	Yes	New command for V3.1.x
filterTest	Yes	Yes	
firmwareCommit	No	Yes	New command for V4.1.x
firmwareDownload	Yes	Yes	
firmwaredownloadstatus	No	Yes	New command for V4.1.x
firmwareRestore	No	Yes	
firmwareshow	No	Yes	New command for V4.1.x
fporttest	Yes	No	New command for V3.1.x
fspfShow	Yes	Yes	
fwAlarmsFilterSet	Yes	Yes	
fwAlarmsFilterShow	Yes	Yes	
fwClassInit	Yes	Yes	
fwConfigReload	Yes	Yes	
fwConfigure	Yes	Yes	
fwFruCfg	No	Yes	
fwHelp	Yes	Yes	
fwMailCfg	Yes	Yes	
fwsamshow	Yes	Yes	New command
fwSetToCustom	Yes	Yes	
fwSetToDefault	Yes	Yes	

Table 25: Fabric OS Command Version Support (Sheet 6 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
fwShow	Yes	Yes	
gbicshow	Yes	Yes	
h	Yes	Yes	
haDisable	No	Yes	Specific to the StorageWorks Core switch
hadump	No	Yes	New command for V4.1.x
haEnable	No	Yes	Specific to the StorageWorks Core switch
haFailover	No	Yes	Specific to the StorageWorks Core switch
haShow	No	Yes	Specific to the StorageWorks Core switch
hasyncstart	No	Yes	New command for V4.1.x
hasyncstop	No	Yes	New command for V4.1.x
help	Yes	Yes	
historyLastShow	No	Yes	
historymode	No	Yes	New command for V4.1.x
historyShow	No	Yes	
i	Yes	Yes	
ifModeSet	Yes	Yes	
ifModeShow	Yes	Yes	
ifShow	Yes	No	
interfaceShow	Yes	Yes	
iodReset	Yes	Yes	
iodSet	Yes	Yes	
iodShow	Yes	Yes	
ipAddrSet	Yes	Yes	
ipAddrShow	Yes	Yes	This command displays unique information based on switch type
islshow	Yes	Yes	New command

Table 25: Fabric OS Command Version Support (Sheet 7 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
itemlist	No	Yes	New command for V4.1.x
killtelnet	No	Yes	New command for V4.1.x
ledtest	No	Yes	New command for V4.1.x
licenseAdd	Yes	Yes	
licenseHelp	Yes	Yes	
licenseIdShow	No	Yes	
licenseRemove	Yes	Yes	
licenseShow	Yes	Yes	
linkCost	Yes	Yes	
login	Yes	Yes	
logout	Yes	Yes	
loopporttest	Yes	Yes	
LSDbShow	Yes	Yes	
mcastShow	Yes	No	
memshow	Yes	Yes	
msCapabilityShow	Yes	Yes	
msConfigure	Yes	Yes	
msPlatShow	Yes	Yes	
msPlClearDB	Yes	Yes	
msPlMgmtActivate	Yes	Yes	
msPlMgmtDeactivate	Yes	Yes	
msTdDisable	Yes	Yes	
msTdEnable	Yes	Yes	
msTdReadConfig	No	Yes	
myid	No	Yes	
nbrStatsClear	Yes	Yes	
nbrStateShow	Yes	Yes	
nodefind	Yes	Yes	New command

Table 25: Fabric OS Command Version Support (Sheet 8 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
nsaliasshow	Yes	Yes	New command
nsAllShow	Yes	Yes	
nscamshow	Yes	Yes	New command
nsShow	Yes	Yes	
nsstatshow	Yes	Yes	
nszonemember	Yes	Yes	
parityCheck	Yes	No	
passwd	Yes	Yes	
pdshow	No	Yes	New command for V4.1.x
perfAddEEMonitor	Yes	Yes	
perfAddIPMonitor	Yes	Yes	
perfAddReadMonitor	Yes	Yes	
perfAddRWMonitor	Yes	Yes	
perfAddSCSIMonitor	Yes	Yes	
perfAddUserMonitor	Yes	Yes	
perfAddWriteMonitor	Yes	Yes	
perfCfgClear	Yes	Yes	
perfCfgRestore	Yes	Yes	
perfCfgSave	Yes	Yes	
perfcleareemonitor	Yes	Yes	New command
perfclearfiltermonitor	Yes	Yes	New command
perfClrAlpaCrc	Yes	Yes	
perfDelEEMonitor	Yes	Yes	
perfDelFilterMonitor	Yes	Yes	
perfHelp	Yes	Yes	
perfSetPortEEMask	Yes	Yes	
perfShowAlpaCrc	Yes	Yes	
perfShowEEMonitor	Yes	Yes	

Table 25: Fabric OS Command Version Support (Sheet 9 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
perfShowFilterMonitor	Yes	Yes	
perfShowPortEEMask	Yes	Yes	
pkicreate	No	Yes	New command for V4.1.x
pkiremove	No	Yes	New command for V4.1.x
pkishow	No	Yes	New command for V4.1.x
portcamshow	Yes	No	New command
portcfgdefault	Yes	Yes	New command
portCfgEport	Yes	Yes	
portCfgGport	Yes	Yes	
portcfgislmode	Yes	Yes	New command
portCfgLongDistance	Yes	Yes	
portCfgLport	Yes	Yes	
portcfgpersistentdisable	Yes	Yes	New command
portcfgpersistentenable	Yes	Yes	New command
portCfgShow	Yes	Yes	
portCfgSpeed	Yes	Yes	
portCfgTrunkport	Yes	Yes	
portdebug	Yes	Yes	New command
portDisable	Yes	Yes	
portEnable	Yes	Yes	
portErrShow	Yes	Yes	
portflagshow	Yes	Yes	New command
portLEDtest	No	Yes	
portLogClear	Yes	Yes	
portLogDump	Yes	Yes	
portLogDumpPort	Yes	Yes	
portloginshow	Yes	Yes	New command
portlogpdisc	Yes	Yes	New command

Table 25: Fabric OS Command Version Support (Sheet 10 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
portLogShow	Yes	Yes	
portlogshowport	Yes	Yes	New command
portLoopbackTest	Yes	Yes	
portname	Yes	Yes	New command
portPerfShow	Yes	Yes	
portRegTest	Yes	Yes	
portRouteShow	Yes	Yes	
portShow	Yes	Yes	
portstatsclear	Yes	Yes	New command
portStatsShow	Yes	Yes	
portswap	No	Yes	New command for V4.1.x
portswapdisable	No	Yes	New command for V4.1.x
portswapenable	No	Yes	New command for V4.1.x
portswapshow	No	Yes	New command for V4.1.x
porttest	Yes	Yes	New command
porttestshow	Yes	Yes	New command
powerOffListSet	No	Yes	New command for V4.1.x
powerOffListShow	No	Yes	New command for V4.1.x
psShow	Yes	Yes	
ptdatashow	No	Yes	
ptphantomshow	No	Yes	
ptpropshow	No	Yes	
ptregshow	No	Yes	
ptrouteshow	No	Yes	
ptstatsshow	No	Yes	
qlDisable	Yes	No	
qlEnable	Yes	No	
qloopAdd	Yes	Yes	

Table 25: Fabric OS Command Version Support (Sheet 11 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
qloopCreate	Yes	Yes	
qloopDelete	Yes	Yes	
qloopRemove	Yes	Yes	
qloopShow	Yes	Yes	
qlPartner	Yes	No	
qlPortDisable	Yes	No	
qlPortEnable	Yes	No	
qlPortShowAll	Yes	No	
qlShow	Yes	No	
qlStatsShow	Yes	No	
quietMode	Yes	No	
ramTest	Yes	No	
reboot	Yes	Yes	Reboots entire chassis in StorageWorks Core switch
routeHelp	Yes	Yes	
savecore	No	Yes	New command for V4.1.x
secfabricshow	Yes	Yes	New command
secfcsfailover	Yes	Yes	New command
sechelp	Yes	Yes	New command
secmodedisable	Yes	Yes	New command
secmodeenable	Yes	Yes	New command
secmodeshow	Yes	Yes	New command
secnonfcspasswd	Yes	Yes	New command
secpolicyabort	Yes	Yes	New command
secpolicyactivate	Yes	Yes	New command
secpolicyadd	Yes	Yes	New command
secpolicycreate	Yes	Yes	New command
secpolicydelete	Yes	Yes	New command
secpolicydump	Yes	Yes	New command

Table 25: Fabric OS Command Version Support (Sheet 12 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
secpolicyfcsmove	Yes	Yes	New command
secpolicyremove	Yes	Yes	New command
secpolicysave	Yes	Yes	New command
secpolicyshow	Yes	Yes	New command
secstatsreset	Yes	Yes	New command
secstatsshow	Yes	Yes	New command
sectemppasswdreset	Yes	Yes	New command
sectemppasswdset	Yes	Yes	New command
sectransabort	Yes	Yes	New command
secversionreset	Yes	Yes	New command
sensorShow	Yes	Yes	
setdbg	Yes	Yes	New command
setesdmode	No	Yes	
setgbicmode	Yes	Yes	
setSfpMode	No	Yes	
setSplbMode	Yes	Yes	
setverbose	Yes	Yes	
sfpShow	Yes	Yes	
slotOff	No	Yes	Specific to the StorageWorks Core switch
slotOn	No	Yes	Specific to the StorageWorks Core switch
slotpoweroff	No	Yes	Specific to the StorageWorks Core switch
slotpoweron	No	Yes	Specific to the StorageWorks Core switch
slotShow	No	Yes	Specific to the StorageWorks Core switch
snmpMibCapSet	Yes	Yes	
spinFab	Yes	Yes	

Table 25: Fabric OS Command Version Support (Sheet 13 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
spinSilk	Yes	Yes	
sramRetentionTest	Yes	Yes	
ssn	Yes	No	New command for V3.1.x
statsTest	Yes	Yes	
stopporttest	Yes	Yes	
supportShow	Yes	Yes	
switchBeacon	Yes	Yes	
switchcfgpersistentdisable	Yes	Yes	New command
switchcfgpersistentenable	Yes	Yes	New command
switchCfgSpeed	Yes	Yes	
switchCfgTrunk	Yes	Yes	
switchDisable	Yes	Yes	
switchEnable	Yes	Yes	
switchName	Yes	Yes	
switchReboot	No	Yes	Reboots the current logical switch in StorageWorks Core switch
switchShow	Yes	Yes	
switchShutdown	No	Yes	Specific to the StorageWorks Core switch
switchStart	No	Yes	Specific to the StorageWorks Core switch
switchStatusPolicySet	Yes	Yes	
switchStatusPolicyShow	Yes	Yes	
switchStatusShow	Yes	Yes	
switchuptime	No	Yes	
syslogdIpAdd	Yes	Yes	
syslogdIpRemove	Yes	Yes	
syslogdIpShow	Yes	Yes	
systemtest	No	Yes	

Table 25: Fabric OS Command Version Support (Sheet 14 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
ssytemverification	No	Yes	New command for V4.1.x
tempShow	Yes	Yes	
timeout	Yes	Yes	New command
topologyShow	Yes	Yes	
trackchangeshelp	Yes	Yes	New command
trackChangesSet	Yes	Yes	
trackChangesShow	Yes	Yes	
trunkDebug	Yes	Yes	
trunkShow	Yes	Yes	
tsclockserver	Yes	Yes	New command
tshelp	Yes	Yes	New command
tstimezone	Yes	Yes	New command
turboRamTest	Yes	Yes	
txdpathtest	Yes	No	New command for V3.1.x
uptime	Yes	Yes	
uRouteConfig	Yes	Yes	Addition of the area parameter
uRouteRemove	Yes	Yes	Addition of the area parameter
uRouteShow	Yes	Yes	
version	Yes	Yes	
wwn	Yes	Yes	
zoneAdd	Yes	Yes	Specify members using area number in V4.1.x
zoneCreate	Yes	Yes	Specify members using area number in V4.1.x
zoneDelete	Yes	Yes	

Table 25: Fabric OS Command Version Support (Sheet 15 of 15)

Command	Supported in V3.1.x	Supported in V4.1.x	Comment
`zoneHelp`	Yes	Yes	
`zoneRemove`	Yes	Yes	Specify members using area number in V4.1.x
`zoneShow`	Yes	Yes	

Fabric and Switch Management

4

This chapter explains the different methods used to manage an HP StorageWorks SAN switch. In order to manage a switch, you must have access to one of the available management methods.

- Overview, page 928
- User Access Level, page 929
- Fabric OS Command Line Interface, page 930
- Web Tools, page 931
- Fabric Manager, page 932
- Fabric Watch, page 934
- Fabric OS Access Layer (API), page 935
- Management Server, page 936

Overview

The HP switch can be managed using several local and remote access methods. In order to manage a switch, you must have access to one of the following management methods:

- Fabric OS command line interface
- WebTools
- Fabric Manager
- Fabric Watch
- Fabric OS Access Layer (API)
- Management Server

Telnet, SNMP and Web Tools require that the switch be accessible using a network connection. The network connection can be from the switch Ethernet port (out of band) or from Fibre Channel (in band). The switch must be configured with an IP address to allow for the network connection. Refer to the hardware manual for your specific switch for information on physically connecting to the switch.

Before changing any of the factory default settings, become familiar with the operations described in this chapter, including both the switch functions and interactive characteristics.

Note: Switches can be accessed simultaneously from different connections. If this happens, changes from one connection may not be updated to the other, and some modifications may be lost. Make sure when connecting with simultaneous multiple connections that you do not overwrite the work of another connection.

User Access Level

There are four levels of user access for the HP switch:

- Root
- Factory
- Admin
- User

In Fabric OS V4.1.x, each user access level can have the following number of simultaneous sessions:

Table 26: StorageWorks Core switch User Access Maximum Sessions

User Name	Maximum Number of Simultaneous Sessions
Root	4
Factory	4
Admin	2
User	4
Web Tools	4

Note: In Fabric OS V3.1.x and earlier, multiple user access to a switch is limited. Each switch allows only a single session per management access method, regardless of user level. Switches can, however, be accessed simultaneously from different connections (for example, through the CLI and Web Tools). If this happens, changes from one connection may not be updated to the other, and some changes may be lost. Make sure when connecting with simultaneous multiple connections that you do not overwrite the work of another connection.

Fabric OS Command Line Interface

The Fabric OS command line interface (CLI) accessed through telnet or serial console provides the user with the full range of management capability on an HP switch. The Fabric OS CLI enables an administrator to monitor and manage entire fabrics, individual switches, and ports from a standard workstation. The entire suite of Fabric OS features and capabilities is available across an entire fabric, from a single access point.

Access is controlled by a switch level password for each user level (factory, root, admin, user). The commands available through the CLI are based on the user's login level, and the license keys used to unlock certain features.

Generally speaking, all configuration, and management tasks are available using the admin or user level ID. The root and factory levels should be used with caution. This manual lists all the commands available to the user and admin level login IDs.

Fabric OS CLI is the complete fabric management tool for HP SANs, and provides the following advantages to administrators:

- Access to the full range of Fabric OS features, based on which license keys you purchase
- A full set of tools to assist administrators with the configuration, monitoring, dynamic provisioning, and daily management of every aspect of Storage Area Networks.
- A deeper view of the tasks involved with managing an HP switch.
- Ability to configure and manage the HP fabric on multiple efficient levels.
- Ability to identify, isolate and manage SAN events across every switch in the fabric.
- Ability to manage switch licenses.
- Ability to perform Fabric Stamping.

Web Tools

Web Tools provides a graphical interface that allows the administrator to monitor and manage entire fabrics and individual switches and ports from a standard workstation. It is an optionally licensed product that runs on Fabric OS. All switches in the fabric are displayed in the main window of Web Tools, including switches that do not have a Web Tools license. However, only switches that have a Web Tools license installed can be managed through Web Tools (other switches must be managed through Telnet).

Web Tools is an excellent partner to the traditional Fabric OS CLI commands, and in many ways can provide faster and more effective results than can be achieved strictly through the CLI. Following are some of the features that make Web Tools an important part of the switch management and administration process:

- Web Tools can be used simultaneously with Fabric OS CLI commands. Simply open a second window and you can take advantage of the benefits of both interfaces at the same time.
- Web Tools can help you find the appropriate Fabric OS CLI command to perform a desired function. For instance, you can perform a function using Web Tools, and watch in a second window as the Fabric OS CLI commands are displayed.
- Web Tools can be used from a standard workstation and provides the user the advantage of being “virtually” in front of any fabric, switch, or port.
- Web Tools makes zoning a simple “click and drag” process, rather than having to tediously type out IP addresses and port numbers to put in a configuration.
- Web Tools provides the “Performance Monitor” feature. This feature allows you to view the status and traffic of a switch or port in seconds by easily creating a variety of effective graphs.
- Web Tools is easy and intuitive to use.

Fabric Manager

Fabric Manager provides a graphical interface that allows the administrator to monitor and manage an entire fabric from a standard workstation. Fabric Manager can be used to manage fabrics containing integrated Fabrics, in addition to individual HP switches. Fabric Manager provides high-level information about all switches in the fabric, launching the Web Tools application when more detailed information is required. The launching of Web Tools is transparent, providing a seamless user interface. In addition to the ability to view the switches as a group, Fabric Manager provides improved performance over Web Tools alone. Fabric Manager is installed on the workstation, and can be used to manage any HP switches that have Fabric OS v2.2 or later. and Web Tools v2.2 or later installed. All switches in the fabric are represented in the main window of Fabric Manager, but only those with a Web Tools license can be managed through Fabric Manager.

Fabric Manager is the complete SAN management power tool for HP SANs, and provides the following advantages to administrators:

- Provides a highly scalable Java™-based application that manages multiple switches and multiple fabrics (up to 8) in real-time.
- Assists SAN administrators with the configuration, monitoring, dynamic provisioning and daily management of Storage Area Networks.
- Lowers the cost of SAN ownership by intuitively facilitating SAN management tasks.
- Saves time by enabling the global integration and execution of processes across multiple fabrics, through its single-point SAN management platform.
- Allows more effective management by providing rapid access to critical SAN information across both Fabric OS SANs and enhanced Fabric OS SANs.
- Provides the ability to configure and manage the HP fabric on multiple efficient levels.
- Provides the ability to intelligently group multiple SAN objects and SAN management functions to provide ease and time-efficiency in administering tasks.
- Provides the ability to identify, isolate and manage SAN events across multiple switches and fabrics.
- Provides drill-down capability to individual SAN components through tightly coupled Web Tools and Fabric Watch integration.
- Provides the ability to discover all SAN components and view the real-time state of all HP fabrics.

- Provides the ability to execute multi-fabric administration of Secure Fabric OS SANs through a single encrypted console.
- Provides the ability to implement scalable SAN management tasks through functionality and tools that intelligently span 8 fabrics and 200 switches.
- Provides the ability to monitor Inter Switch Links (ISLs)
- Provides the ability to manage switch licenses
- Provides the ability to perform Fabric Stamping

Fabric Watch

Fabric Watch software monitors the performance and status of Fibre Channel networks and HP switches, and can alert SAN managers when problems arise. The real-time alerts from Fabric Watch software help SAN managers solve problems before they become costly failures. SAN managers can configure Fabric Watch software to monitor any of the following:

- Fabric events (such as topology re-configurations and zone changes)
- Physical switch conditions (such as fans, power supplies, and temperature)
- Port behavior (such as state changes, errors, and performance)
- SFPs behavior

With Fabric Watch software, SAN managers can place limits, or *thresholds*, on the behavior of different switch and fabric elements. Fabric Watch then monitors these behavior variables, or *counters*, and issues an alarm to address problems when a counter exceeds a threshold. An alarm may e-mail the SAN manager or lock out a port log, depending on how the manager configures the alarm.

Fabric OS Access Layer (API)

The Fabric OS Access Layer is an application programming interface (API) that enables any application to access critical information about an HP SAN. With Fabric Access, an application can query or control individual switches or the entire fabric.

The Fabric OS Access Layer has the following advantages

- Ability to use third party software to manage an HP fabric
- Ability to create SAN management applications specific to your needs, using the tools available in the Fabric OS

Management Server

The Management Server is a Fibre Channel native in-band management interface. This interface allows a SAN management application to retrieve and administer the fabric and interconnect elements such as switches, servers, and storage devices. This interface runs directly over Fibre Channel through the HBA.

An ACL of WWN addresses determines which systems have access to the Management Server database. If the list is empty (default), the Management Server is accessible to all systems connected in-band to the Fabric. For a more secured access, an administrator may specify WWNs in the ACL. These WWNs are usually associated with the management applications. If any WWNs are entered into the ACL then access to the Management Server is restricted to only those WWNs listed in the ACL.

Control Processor Commands

5

This chapter lists the commands that may be available, depending upon the Fabric OS version (V3.1.x or V4.1.x), when logged into the Active CP and Standby CP in a StorageWorks Core switch.

Active CP Commands

When you are logged into the Active CP, the full suite of commands are supported (subject to which license keys are installed).

HP recommends that you log into a specific logical switch, when performing management functions, rather than the Active CP. This method guarantees that any commands you execute are run on the desired logical switch.

When you open a telnet session to the Active CP IP Address, commands execute by default on logical switch 0. When you open a connection through the Console or Modem port, a prompt requires you to specify which logical switch you are connecting to.

Standby CP Commands

The commands in Table 27 are supported when logged into the Standby CP.

Table 27: StorageWorks Core switch Standby CP Commands

Command	Notes
`date`	Print/set the system date and time.
`errclear`	Clear error log.
`errDump`	Print error log with no page breaks.
`errnvlogsizeset`	Resize non-volatile (persistent) error log.
`errnvlogsizeshow`	Show persistent error log configuration.
`errsavelvlset`	Set error save level.
`errsavelvlshow`	Get error save level.
`errshow`	Print error log (with page breaks).
`fastboot`	Reboot switch, bypassing the POST.
`firmwarecommit`	Commit firmware to stable storage.
`firmwaredownload`	Download firmware into the switch.
`firmwaredownloadstatus`	Display the progress and status of `firmwaredownload`.
`firmwarerestore`	Restore previous firmware into the switch.
`firmwareshow`	Display firmware versions in the switch.
`h`	Display shell history.
`hashow`	Display high availability status.
`help`	Display help commands available in the standby CP.
`ifmodeset`	Set the link operating mode for a network interface.
`ifmodeshow`	Display the link operating mode for a network interface.
`killtelnet`	Terminate telnet/serial login sessions interactively.
`login`	Login as a new user.
`logout`	Logout from remote session
`memshow`	Display memory usage in the system.

Table 27: StorageWorks Core switch Standby CP Commands (Continued)

Command	Notes
`myrid`	Display current login ID details.
`reboot`	Reboot this processor. When executed from the Standby CP, only the Standby CP is rebooted.
`savecore`	FTP or Remove core files generated by daemons.
`timeout`	Set or display the idle timeout value for a login session.
`uptime`	Display how long switch has been up.
`version`	Display firmware version information.

Security Commands

6

This chapter summarizes the commands that are only available on the Primary FCS when the security feature is installed and enabled.

Commands Exclusive to the Primary FCS

The following commands are available only on the Primary FCS when security is installed and enabled.

Table 28: Commands Exclusive to the Primary FCS

Command	Notes
agtcfgset	Can be run on all switches, but it needs to be run on the Primary FCS to modify community strings
agtcfgdefault	Must be run from the Primary FCS switch.
aliadd	Must be run from the Primary FCS switch.
alicreate	Must be run from the Primary FCS switch.
alidelete	Must be run from the Primary FCS switch.
aliremove	Must be run from the Primary FCS switch.
alishow	Must be run from the Primary FCS switch.
cfgadd	Must be run from the Primary FCS switch.
cfgclear	Must be run from the Primary FCS switch.
cfgcreate	Must be run from the Primary FCS switch.
cfgdelete	Must be run from the Primary FCS switch.
cfgdisable	Must be run from the Primary FCS switch.
cfgenable	Must be run from the Primary FCS switch.
cfgremove	Must be run from the Primary FCS switch.
cfgsave	Must be run from the Primary FCS switch.
cfgshow	Must be run from the Primary FCS switch.
cfgtransabort	Must be run from the Primary FCS switch.
cfgtransshow	Must be run from the Primary FCS switch.
date	This command can be run on all switches to view the current date. You can only modify the date from the Primary FCS switch.
fazoneadd	Must be run from the Primary FCS switch.
fazonecreate	Must be run from the Primary FCS switch.
fazonedelete	Must be run from the Primary FCS switch.
fazoneremove	Must be run from the Primary FCS switch.
fazoneshow	Must be run from the Primary FCS switch.

Table 28: Commands Exclusive to the Primary FCS (Continued)

Command	Notes
msconfigure	Must be run from the Primary FCS switch.
msplmgmtdeactivate	Must be run from the Primary FCS switch.
msplmgmtactivate	Must be run from the Primary FCS switch.
msplcleardb	Must be run from the Primary FCS switch.
mstddisable	mstddisable "ALL" must be run from the Primary FCS switch.
mstdenable	mstdenable "ALL" must be run from the Primary FCS switch.
passwd	Must be run from the Primary FCS switch.
qloopadd	Must be run from the Primary FCS switch.
qloopcreate	Must be run from the Primary FCS switch.
qloopdelete	Must be run from the Primary FCS switch.
qloopremove	Must be run from the Primary FCS switch.
qloopshow	Must be run from the Primary FCS switch.
secfabricshow	Must be run from the Primary FCS switch.
secmodedisable	Must be run from the Primary FCS switch.
secnonfcspasswd	Must be run from the Primary FCS switch.
secpolicyabort	Must be run from the Primary FCS switch.
secpolicyactivate	Must be run from the Primary FCS switch.
secpolicyadd	Must be run from the Primary FCS switch.
secpolicycreate	Must be run from the Primary FCS switch.
secpolicydelete	Must be run from the Primary FCS switch.
secpolicydump	Must be run from the Primary FCS switch.
secpolicyfcsmove	Must be run from the Primary FCS switch.
secpolicyremove	Must be run from the Primary FCS switch.
secpolicysave	Must be run from the Primary FCS switch.
secpolicyshow	Must be run from the Primary FCS switch.
sectemppasswdset	Must be run from the Primary FCS switch.
sectemppasswdreset	Must be run from the Primary FCS switch.

Table 28: Commands Exclusive to the Primary FCS (Continued)

Command	Notes
`secversionreset`	Must be run from the Primary FCS switch. Can also be run on a single non-FCS switch which is segmented from a fabric.
`tsclockserver`	Must be run from the Primary FCS switch.
`wwn`	This command can be run on all switches to view the WWN. With security enabled the WWN of a switch cannot be modified.
`zoneadd`	Must be run from the Primary FCS switch.
`zonecreate`	Must be run from the Primary FCS switch.
`zonedelete`	Must be run from the Primary FCS switch.
`zoneremove`	Must be run from the Primary FCS switch.
`zoneshow`	Must be run from the Primary FCS switch.

glossary

This glossary defines terms used in this guide or related to this product and is not a comprehensive glossary of computer terms.

16-port card
The Fibre Channel port card provided with the StorageWorks Core switch. Contains 16 Fibre Channel ports and the corresponding LEDs indicating port status and speed.

See also port card.

8b/10b Encoding
An encoding scheme that converts each 8-bit byte into 10 bits. Used to balance ones and zeros in high-speed transports.

Access Control List
Enables an organization to bind a specific WWN to a specific switch port or set of ports, preventing a port in another physical location from assuming the identity of a real WWN. May also refer to a list of the Read/Write access of a particular community string.

See also device connection controls.

Account Level Switches
Refers to switches that have four login accounts into the operating system (in descending order): root, factory, admin, and user.

See also root account, factory account, admin account, and user account.

Address Identifier
A 24-bit or 8-bit value used to identify the source or destination of a frame.

Admin Account
A login account intended for use by the customer to control switch operation.

See also account level switches.

AL_PA
Arbitrated Loop Physical Address. A unique 8-bit value assigned during loop initialization to a port in an arbitrated loop.

Alias
An alternate name for an element or group of elements in the fabric. Aliases can be used to simplify the entry of port numbers and WWNs when creating zones.

Alias Address Identifier
An address identifier recognized by a port in addition to its standard identifier. An alias address identifier may be shared by multiple ports.

See also alias.

Alias AL_PA
An AL_PA value recognized by an L_Port in addition to the AL_PA assigned to the port.

See also AL_PA.

Alias Server
A fabric software facility that supports multicast group management.

ANSI
American National Standards Institute. The governing body for Fibre Channel standards in the U.S.A.

API
Application Programming Interface. Defined protocol that allows applications to interface with a set of services.

Arbitrated Loop
A shared 100 or 200 MBps Fibre Channel transport structured as a loop. Can support up to 126 devices and one fabric attachment.

See also topology.

Arbitrating State
The state in which a port has become the loop master. This state is only available from the Open state.

Area Number
A number assigned to each potential port location in the StorageWorks Core switch. Used to distinguish StorageWorks Core switch ports that have the same port number but are on different port blades.

ASIC
Application Specific Integrated Circuit.

ATM
Asynchronous Transfer Mode. A transport used for transmitting data over LANs or WANs that transmit fixed-length units of data. Provides any-to-any connectivity, and allows nodes to transmit simultaneously.

Auto-negotiate Speed
Process that allows two devices at either end of a link segment to negotiate common features, speed (e.g., 1 or 2 Gbps) and functions.

Autosense
Process during which a network device automatically senses the speed of another device.

AW_TOV
Arbitration Wait Time-out Value. The minimum time an arbitrating L_Port waits for a response before beginning loop initialization.

Backup FCS Switch
Backup fabric configuration server switch. The switch or switches assigned as backup in case the primary FCS switch fails.

See also FCS switch, primary FCS switch.

Bandwidth
The total transmission capacity of a cable, link, or system. Usually measured in bps (bits per second). May also refer to the range of transmission frequencies available to a network.

See also throughput.

BB_Credit
Buffer-to-buffer credit. The number of frames that can be transmitted to a directly connected recipient or within an arbitrated loop. Determined by the number of receive buffers available.

See also Buffer-to-buffer Flow Control, EE_Credit.

Beacon
When all the port LEDs on a switch are set to flash from one side of the switch to the other, to enable identification of an individual switch in a large fabric. A switch can be set to beacon by telnet command or through Web Tools.

Beaconing
The state of the switches LEDs when the switch is set to Beacon.

See also Beacon.

Beginning Running Disparity
The disparity at the transmitter or receiver when the special character associated with an ordered set is encoded or decoded.

See also disparity.

BER
Bit Error Rate. The rate at which bits are expected to be received in error. Expressed as the ratio of error bits to total bits transmitted.

See also error.

BISR
Built-In Self Repair. Refers to the range of algorithms and circuit techniques to replace fault elements in a VLSI circuit with redundant fault-free ones.

See also BIST, CMBISR.

BIST
Built-In Self Test. The technique of designing circuits with additional logic which can be used to test proper operation of the primary (functional) logic.

See also BISR, CMBISR.

Bit Synchronization
See BER.

Blade
See 16-port card.

Blind-mate Connector
A two-way connector used in some switches to provide a connection between the motherboard and the power supply.

Block
As applies to Fibre Channel, upper-level application data that is transferred in a single sequence.

Blower Assembly
A fan that prevents a switch (or individual elements within a switch) from overheating.

Boot Flash
Flash memory that stores the boot code and boot parameters. The processor executes its first instructions from boot flash. Data is cached in RAM.

Boot Monitor
Code used to initialize the CP (control processor) environment after powering on. Identifies the amount of memory available and how to access it, and retrieves information about system buses.

Broadcast
The transmission of data from a single source to all devices in the fabric, regardless of zoning.

See also multicast, unicast.

Buffer-to-buffer Flow Control
Management of the frame transmission rate in either a point-to-point topology or in an arbitrated loop.

See also BB_Credit.

Cascade
Two or more interconnected Fibre Channel switches. StorageWorks 1 Gb SAN switches (running Fabric OS V2) and later can be cascaded up to 239 switches, with a recommended maximum of seven interswitch links (no path longer than eight switches).

See also fabric, ISL.

Chassis
The metal frame in which the switch and switch components are mounted.

Circuit
An established communication path between two ports. Consists of two virtual circuits capable of transmitting in opposite directions.

See also link.

Class 1
Service that provides a dedicated connection between two ports (also called connection-oriented service), with notification of delivery or non-delivery.

Class 2
Service that provides multiplex and connectionless frame switching service between two ports, with notification of delivery or non-delivery.

Class 3
Service that provides a connectionless frame switching service between two ports, without notification of delivery or non-delivery of data. This service can also be used to provide a multicast connection between the originator and recipients, with notification of delivery or non-delivery.

Class F
Connectionless service for control traffic between switches, with notification of delivery or non-delivery of data between the E_Ports.

Class of Service
A specified set of delivery characteristics and attributes for frame delivery.

CLI
Command line interface. Interface that depends entirely on the use of commands, such as through telnet or SNMP, and does not involve a Graphic User Interface (GUI).

CLS
Close Primitive Signal. Only in an Arbitrated Loop; sent by an L_Port that is currently communicating on the loop, to close communication to an other L_Port.

CMBISR
Central Memory Built-In Self Repair. Test and repair bad cells in the central memory. If a "fail" is reported, inform Tech Support and replace the board.

See also BIST, BISR.

Comma
A unique pattern (either 1100000 or 0011111) used in 8b/10b encoding to specify character alignment within a data stream.

See also K28.5.

Community (SNMP)
A relationship between a group of SNMP managers and an SNMP agent, in which authentication, access control, and proxy characteristics are defined.

See also SNMP.

Compact Flash
Flash memory that stores the run-time operating system and is used like hard disk storage. Not visible within the processor's memory space. Data is stored in file system format.

Configuration
How a system is set up. May refer to hardware or software.

- Hardware: The number, type, and arrangement of components that make up a system or network.
- Software: The set of parameters that guide switch operation. May include general system parameters, IP address information, Domain ID, and other information. Modifiable by any login with administrative privileges.

May also refer to a set of zones.

See also zone configuration.

Connection Initiator
A port that has originated a Class 1 dedicated connection and received a response from the recipient.

Connection Recipient
A port that has received a Class 1 dedicated connection request and transmitted a response to the originator.

Control Panel
Refers to the left-side panel of Web Tools, which accesses fabric-wide functions such as Zoning and Events.

Core Switch
A switch whose main task is to interconnect other switches.

See also SAN switch.

CP Card
Control Processor Card. The central processing unit of the StorageWorks Core switch, which contains two CP Card slots to provide redundancy. Provides Ethernet, serial, and modem ports with the corresponding LEDs.

CRC
Cyclic Redundancy Check. A check for transmission errors included in every data frame.

Credit
As applies to Fibre Channel, the number of receive buffers available for transmission of frames between ports.

See also BB_Credit, EE_Credit.

CT_HDR
Common Transport Header. A header that conforms to the Fibre Channel Common Transport (FC_CT) protocol.

CT_IU
Common Transport Information Unit. An information unit that conforms to the Fibre Channel Common Transport (FC_CT) protocol.

Current Fill Word
The fill word currently selected by the LPSM.

See also fill word, LPSM.

Cut-through
A switching technique that allows the route for a frame to be selected as soon as the destination address is received.

See also route.

Data Word
Type of transmission word that occurs within frames. The frame header, data field, and CRC all consist of data words.

See also frame, ordered set, transmission word.

DB-9 connector
A 9-pin version of the RS-232C port interface. May be either the male of female interface.

See also RS-232 port.

dBm
Logarithmic unit of power used in electronics. Indicates signal strength in decibels above the reference level, which is 1 milliwatt for dBm. An increase of 10 dBm or represents a 10-fold increase in power.

DCE port
A data communications equipment port capable of interfacing between a DTE (data terminal equipment) port and a transmission circuit. DTE devices with an RS-232 (or EIA-232) port interface transmit on pin 3, and receive on pin 2.

See also DTE port, RS-232 port.

Defined Zone Configuration
The set of all zone objects defined in the fabric. May include multiple zone configurations.

See also enabled zone configuration, zone configuration.

Device Connection Controls
Enables organizations to bind an individual device port to a set of one or more switch ports. Device ports are specified by a WWN and typically represent HBAs (servers).

See also access control lists.

Device
A disk, a RAID, or an HBA.

Disparity
The relationship of ones and zeros in an encoded character. “Neutral disparity” means an equal number of each, “positive disparity” means a majority of ones, and “negative disparity” means a majority of zeros.

DLS
Dynamic Load Sharing. Dynamic distribution of traffic over available paths. Allows for recomputing of routes when an Fx_Port or E_Port changes status.

Domain ID
As applies to HP StorageWorks switches, a unique number between 1 and 239 that identifies the switch to the fabric and is used in routing frames. Usually automatically assigned by the switch, but can be manually assigned.

DTE port
A data terminal equipment port capable of interfacing to a transmission circuit through a connection to a DCE (data communications equipment) port. DTE devices with an RS-232 (or EIA-232) port interface transmit on pin 3, and receive on pin 2 in a 9-pin connector (reversed in 25-pin connectors).

See also DCE port, RS-232 port.

DWDM
Dense Wavelength Multiplexing. A means to concurrently transmit more than one stream of data through a single fiber by modulating each stream of data onto a different wavelength of light.

E_D_TOV
Error Detect Time-out Value. The minimum amount of time a target waits for a sequence to complete before initiating recovery. Can also be defined as the maximum time allowed for a round-trip transmission before an error condition is declared.

See also R_A_TOV, RR_TOV.

E_Port
Expansion Port. A type of switch port that can be connected to an E_Port on another switch to create an ISL.

See also ISL.

EE_Credit
End-to-end Credit. The number of receive buffers allocated by a recipient port to an originating port. Used by Class 1 and 2 services to manage the exchange of frames across the fabric between source and destination.

See also End-to-end Flow Control, BB_Credit.

EIA Rack
A storage rack that meets the standards set by the Electronics Industry Association.

ELWL
Extra Long Wavelength. Laser light with a periodic length greater than 1300 nm (e.g., 1420 or 1550). ELWL lasers are used to transmit Fibre Channel data over distances greater than 10 Km.

Also known as XLWL.

Enabled Zone Configuration
The currently enabled zone configuration. Only one configuration can be enabled at a time.

See also defined zone configuration, zone configuration.

End-to-end Flow Control
Governs flow of class 1 and 2 frames between N_Ports.

See also EE_Credit.

Entry Fabric
Basic HP license that allows one E_Port per switch. Not supported by StorageWorks Core switches.

Error
As applies to Fibre Channel, a missing or corrupted frame, time-out, loss of synchronization, or loss of signal (link errors).

See also loop failure.

ESD
Electrostatic Discharge.

Exchange
The highest level Fibre Channel mechanism used for communication between N_Ports. Composed of one or more related sequences, and can work in either one or both directions.

Extended Fabric
An HP product that runs on Fabric OS and allows creation of a Fibre Channel fabric interconnected over distances of up to 100 kilometers.

Extended Fabric is a means of allowing the implementation and management of SANs over extended distances. This is achieved by adjusting the Buffer-to-Buffer Credits to guaranteed allocation of buffers to specific ports.

F_Port
Fabric Port. A port that is able to transmit under fabric protocol and interface over links. Can be used to connect an N_Port to a switch.

See also FL_Port, Fx_Port.

Fabric
A Fibre Channel network containing two or more interconnected switches in addition to hosts and devices. May also be referred to as a switched fabric.

See also topology, SAN, cascade.

Fabric Access
An HP product that consists of a set of APIs that allow third party applications to interface with Fabric OS.

Fabric Access allows the application to control the fabric directly for functions such as discovery, access (zoning), management, performance, and switch control. Consists of a host-based library that interfaces the application to switches in the fabric over an out-of-band TCP/IP connection or in-band using an IP-capable Host Bus Adapter (HBA).

Fabric Assist
An HP feature that enables private and public hosts to access public targets anywhere on the fabric, provided they are in the same Fabric Assist zone. This feature is available only when both QuickLoop and Zoning are installed on the switch.

Fabric Assist is a means of allowing private hosts to communicate with public targets across a switched fabric. Fabric Assist also allows private hosts to communicate with private targets that are not resident on the same switch across a switched fabric.

See also QuickLoop.

Fabric Configuration Server
One or more designated HP switches that store and manage the configuration and security parameters for all other switches in the fabric. These switches are designated by WWN, and the list of designated switches is known fabric-wide.

Fabric Manager
An HP product that works in conjunction with Web Tools to provide a graphical user interface for managing switch groups (such as the SAN Switch Integrated/32) as a single unit, instead of as separate switches. Fabric Manager is installed on and run from a computer workstation.

Fabric Name
The unique identifier assigned to a fabric and communicated during login and port discovery.

Fabric OS
The proprietary operating system on HP StorageWorks switches.

Fabric Watch
An HP product that runs on Fabric OS and allows monitoring and configuration of fabric and switch elements.

Allows the SAN manager to monitor key fabric and switch elements, making it easy to quickly identify and escalate potential problems. It monitors each element for out-of-boundary values or counters and provides notification when defined boundaries are exceeded. The SAN manager can configure which elements, such as error, status, and performance counters, are monitored within an HP switch.

See also Fabric Manager.

Factory Account
A login used during manufacturing to initialize and test a switch and is not intended for customer use.

See also account level switches.

Failover
The act that causes control to pass from one redundant unit to another. In the StorageWorks Core switch one may failover from the currently Active Control Processor (CP) to the Standby CP.

FAN
Fabric access notification. Retains the AL_PA and fabric address when loop re-initializes (if the switch supports FAN).

FC-AL-3
The Fibre Channel Arbitrated Loop standard defined by ANSI. Defined on top of the FC-PH standards.

FC-FLA
The Fibre Channel Fabric Loop Attach standard defined by ANSI.

FCIA
Fibre Channel Industry Association. An international organization of Fibre Channel industry professionals. Among other things, provides oversight of ANSI and industry developed standards.

FCP
Fibre Channel Protocol. Mapping of protocols onto the Fibre Channel standard protocols. For example, SCSI FCP maps SCSI-3 onto Fibre Channel.

FC-PH-1, 2, 3
The Fibre Channel Physical and Signaling Interface standards defined by ANSI.

FC-PI
The Fibre Channel Physical Interface standard defined by ANSI.

FC-PLDA
The Fibre Channel Private Loop Direct Attach standard defined by ANSI. Applies to the operation of peripheral devices on a private loop.

FCS switch
Fabric configuration server switch. One or more designated HP switches that store and manage the configuration and security parameters for all switches in the fabric. FCS switches are designated by WWN, and the list of designated switches is communicated fabric-wide.

See also backup FCS switch, primary FCS switch.

FC-SW-2
The second generation of the Fibre Channel Switch Fabric standard defined by ANSI. Specifies tools and algorithms for the interconnection and initialization of Fibre Channel switches in order to create a multi-switch Fibre Channel fabric.

Fibre Channel Transport
A protocol service that supports communication between Fibre Channel service providers.

See also FSP.

FIFO
First In, First Out. May also refer to a data buffer that follows the first in, first out rule.

Fill Word
An IDLE or ARB ordered set that is transmitted during breaks between data frames to keep the Fibre Channel link active.

Firmware Download
Loading firmware down from a server into a switch.

Firmware
The basic operating system provided with the hardware.

FL_Port
Fabric Loop Port. A port that is able to transmit under fabric protocol and also has arbitrated loop capabilities. Can be used to connect an NL_Port to a switch.

See also F_Port, Fx_Port.

Flash Partition
Two redundant usable areas, called "partitions," into which firmware can be downloaded in the StorageWorks Core switch.

Flash
Programmable NVRAM memory that maintains its contents.

FLOGI
Fabric Login. The process by which an N_Port determines whether a fabric is present, and if so, exchanges service parameters with it.

See also PLOGI.

Frame
The Fibre Channel structure used to transmit data between ports. Consists of a start-of-frame delimiter, header, any optional headers, the data payload, a cyclic redundancy check (CRC), and an end-of-frame delimiter. There are two types of frames: Link control frames (transmission acknowledgements, etc.) and data frames.

See also Data Word.

FRU
Field Replaceable Unit. A component that can be replaced on site.

FS_ACC
Fibre Channel Services Accept. The information unit used to indicate acceptance of a request for a Fibre Channel service.

FS_IU
Fibre Channel Services Information Unit. An information unit that has been defined by a Fibre Channel service.

FS_REQ
Fibre Channel Services Request. A request for a Fibre Channel services function, or notification of a fabric condition or event.

FS_RJT
Fibre Channel Services Reject. An indication that a request for Fibre Channel services could not be processed.

FS
Fibre Channel Service. A service that is defined by Fibre Channel standards and exists at a well-known address. For example, the Simple Name Server is a Fibre Channel service.

See also FSP.

FSPF
Fabric Shortest Path First. HP routing protocol for Fibre Channel switches.

FSP
Fibre Channel Service Protocol. The common protocol for all fabric services, transparent to the fabric type or topology.

See also FS.

Full Fabric
The HP license that allows multiple E_Ports on a switch, making it possible to create multiple ISL links.

Full-duplex
A mode of communication that allows the same port to simultaneously transmit and receive frames.

See also half-duplex.

Fx_Port
A fabric port that can operate as either an F_Port or FL_Port.

See also F_Port, FL_Port.

G_Port
Generic Port. A port that can operate as either an E_Port or F_Port. A port is defined as a G_Port when it is not yet connected or has not yet assumed a specific function in the fabric.

Gateway
Hardware that connects incompatible networks by providing translation for both hardware and software. For example, an ATM gateway can be used to connect a Fibre Channel link to an ATM connection.

GBIC
Gigabit interface converter. A removable serial transceiver module that allows gigabaud physical-level transport for Fibre Channel and gigabit Ethernet. Typically refers only to the SC-form factor transceivers.

See also SFP.

Gbps
Gigabits per second (1,062,500,000 bits/second).

GBps
Gigabytes per second (1,062,500,000 bytes/second).

Half-duplex
A mode of communication that allows a port to either transmit or receive frames at any time, but not simultaneously (with the exception of link control frames, which can be transmitted at any time).

See also full-duplex.

Hard Address
The AL_PA that an NL_Port attempts to acquire during loop initialization.

Hardware Translative Mode
A method for achieving address translation. The following two hardware translative modes are available to a QuickLoop-enabled switch:

- Standard Translative Mode: Allows public devices to communicate with private devices that are directly connected to the fabric.
- QuickLoop Mode: Allows initiator devices to communicate with private or public devices that are not in the same loop.

HBA
Host Bus Adapter. The interface card between a server or workstation bus and the Fibre Channel network.

High Availability
An attribute of equipment that identifies it as being capable of conducting customer operations well in excess of 99% of the time. Typically High Availability is identified by the number of nines in that percentage. “Five Nines” means the equipment is rated as being capable of conducting customer operations 99.999% of the time without failure.

Host
A computer that accesses storage devices over the fabric. May also be referred to as a server.

See also workstation.

Hot Pluggable
A FRU capability that indicates it may be extracted or installed while customer data is otherwise flowing in the chassis.

Hub
A Fibre Channel wiring concentrator that collapses a loop topology into a physical star topology. Nodes are automatically added to the loop when active and removed when inactive.

IBTA
The InfiniBand Trade Association (IBTA). The IBTA is an industry consortium of more than 200 companies working together to develop a new common I/O specification designed to bring greater scalability and performance to server I/O. InfiniBand defines a new channel based, switched-fabric technology for server-to-server and server-to-I/O interconnection that is expected to improve scalability and performance over existing PCI Bus technologies.

Idle
Continuous transmission of an ordered set over a Fibre Channel link when no data is being transmitted, to keep the link active and maintain bit, byte, and word synchronization.

InfiniBand
See IBTA.

Initiator
A server or workstation on a Fibre Channel network that initiates communications with storage devices.

See also Target.

Integrated Fabric
The fabric created by a SAN Switch Integrated/32 and SAN Switch Integrated/64, consisting of six SAN Switch 16-EL switches cabled together and configured to handle traffic as a seamless group.

IOD
In-order Delivery. A parameter that, when set, guarantees that frames are either delivered in order or dropped.

IPA
Initial Process Associator. An identifier associated with a process at an N_Port.

Isolated E_Port
An E_Port that is online but not operational due to overlapping Domain IDs or nonidentical parameters (such as E_D_TOVs).

See also E_Port.

ISL
Interswitch Link. a Fibre Channel link from the E_Port of one switch to the E_Port of another.

See also E_Port, cascade, ISL Trunking.

ISL Trunking
An HP feature that enables distribution of traffic over the combined bandwidth of up to four ISLs (between adjacent switches), while preserving in-order delivery. A set of trunked ISLs is called a trunking group; each port employed in a trunking group is called a trunking port.

See also Master Port.

IU
Information Unit. A set of information as defined by either upper-level process protocol definition or upper-level protocol mapping.

JBOD
Just a Bunch Of Disks. Indicates a number of disks connected in a single chassis to one or more controllers.

See also RAID.

K28.5
A special 10-bit character used to indicate the beginning of a transmission word that performs Fibre Channel control and signaling functions. The first seven bits of the character are the comma pattern.

See also comma.

Kernel Flash
Flash memory that stores the bootable kernel code and is visible within the processor's memory space. Data is stored as raw bits.

Key Pair
In public key cryptography, a pair of keys consisting of an entity's public and private key. The public key can be publicized, but the private key must be kept secret.

L_Port
Loop Port. A node port (NL_Port) or fabric port (FL_Port) that has arbitrated loop capabilities. An L_Port can be in one of two modes:

- Fabric mode: Connected to a port that is not loop capable, and using fabric protocol.
- Loop mode: In an arbitrated loop and using loop protocol. An L_Port in loop mode can also be in participating mode or non-participating mode.

See also Non-participating Mode, Participating Mode.

Latency
The period of time required to transmit a frame, from the time it is sent until it arrives. Together, latency and bandwidth define the speed and capacity of a link or system.

LED
Light Emitting Diode. Used on HP switches to indicate the status of various switch elements.

Link Services
A protocol for link-related actions.

Link
As applies to Fibre Channel, a physical connection between two ports, consisting of both transmit and receive fibers.

See also Circuit.

LIP
Loop Initialization Primitive. The signal used to begin initialization in a loop. Indicates either loop failure or resetting of a node.

LIS_HOLD_TIME
Loop Initialization Sequence Hold Time. The maximum period of time for a node to forward a loop initialization sequence**.**

LM_TOV
Loop Master Time-out Value. The minimum time that the loop master waits for a loop initialization sequence to return.

Login BB_Credit
The number of receive buffers a receiving L_Port has available when a circuit is first established.

See also BB_Credit.

Loop Circuit
A temporary bidirectional communication path established between L_Ports.

Loop Failure
Loss of signal within a loop for any period of time, or loss of synchronization for longer than the time-out value.

See also error.

Loop Initialization
The logical procedure used by an L_Port to discover its environment. Can be used to assign AL_PA addresses, detect loop failure, or reset a node.

Loop_ID
A hex value representing one of the 127 possible AL_PA values in an arbitrated loop.

Looplet
A set of devices connected in a loop to a port that is a member of another loop.

LPSM
Loop Port State Machine. The logical entity that performs arbitrated loop protocols and defines the behavior of L_Ports when they require access to an arbitrated loop.

LWL
Long Wavelength. A type of fiber optic cabling that is based on 1300-mm lasers and supports link speeds of 1.0625 Gbps. May also refer to the type of GBIC or SFP.

See also SWL.

Master Port
As relates to trunking, the port that determines the routing paths for all traffic flowing through the trunking group. One of the ports in the first ISL in the trunking group is designated as the master port for that group.

See also ISL Trunking.

Media
See transceiver.

MIB
Management Information Base. An SNMP structure to help with device management, providing configuration and device information.

Modem Serial Port
The upper serial port on the CP Card of the StorageWorks Core switch. Can be used to connect the CP Card to a modem with a standard 9-pin modem cable. Consists of a DB-9 connector wired as a RS-232 device, and can be connected by serial cable to a DCE device. A Hayes-compatible modem or Hayes-emulation is required. The device name is ttyS1.

See also DB-9 connector, DCE port, terminal serial port.

Monitoring State
The state in which a port is monitoring the flow of information for data relevant to the port.

Multicast
The transmission of data from a single source to multiple specified N_Ports (as opposed to all the ports on the network).

See also broadcast, unicast.

Multimode
A fiber optic cabling specification that allows up to 500 meters between devices for 1 Gb, or 300 meters between devices for 2 Gb.

N_Port
Node Port. A port on a node that can connect to a Fibre Channel port or to another N_Port in a point-to-point connection.

See also NL_Port, Nx_Port.

NAA
Network Address Authority. An identifier that indicates the format of a network address.

Name Server
Frequently used to indicate Simple Name Server.

See also SNS.

Native Address Identifier
A unique, 64-bit address is assigned to each port, and is referred to as its World-Wide Name (WWN). If a port connects to an arbitrated loop, it will also be assigned a dynamic 8-bit address, referred to as its arbitrated loop physical address, or AL_PA. If it connects to a fabric, it will be assigned a dynamic 24-bit address, referred to as its Native Address Identifier.

Negotiate
See auto-negotiate speed and autosense.

NL_Port
Node Loop Port. A node port that has arbitrated loop capabilities. Used to connect an equipment port to the fabric in a loop configuration through an FL_Port.

See also N_Port, Nx_Port.

Node Name
The unique identifier for a node, communicated during login and port discovery.

Node
A Fibre Channel device that contains an N_Port or NL_Port.

Non-participating Mode
A mode in which an L_Port in a loop is inactive and cannot arbitrate or send frames, but can retransmit any received transmissions. This mode is entered if there are more than 127 devices in a loop and an AL_PA cannot be acquired.

See also L_Port, Participating Mode.

Nx_Port
A node port that can operate as either an N_Port or NL_Port.

Open Originator
The L_Port that wins arbitration in an arbitrated loop and sends an OPN ordered set to the destination port, then enters the Open state.

Open Recipient
The L_Port that receives the OPN ordered set from the open originator, and then enters the Open state.

Open State
The state in which a port can establish a circuit with another port. A port must be in the Open state before it can arbitrate.

OPN
Open Primitive Signal.

Ordered Set
A transmission word that uses 8B/10B mapping and begins with the K28.5 character. Ordered sets occur outside of frames, and include the following items:

- Frame delimiters: Mark frame boundaries and describe frame contents.
- Primitive signals: Indicate events.
- Primitive sequences: Indicate or initiate port states.

Ordered sets are used to differentiate Fibre Channel control information from data frames and to manage the transport of frames.

Packet
A set of information transmitted across a network.

See also Frame.

Participating Mode
A mode in which an L_Port in a loop has a valid AL_PA and can arbitrate, send frames, and retransmit received transmissions.

See also L_Port, Non-participating Mode.

Path Selection
The selection of a transmission path through the fabric. HP StorageWorks switches use the FSPF protocol.

Performance Monitor
Comprehensive HP tool for monitoring the performance of networked storage resources.

Performance Monitoring
An HP product that provides error and performance information to the administrator and end user for use in storage management.

Phantom Address
An AL_PA value that is assigned to an device that is not physically in the loop.

Also known as phantom AL_PA.

Phantom Device
A device that is not physically in an arbitrated loop, but is logically included through the use of a phantom address.

PLOGI
Port Login. The port-to-port login process by which initiators establish sessions with targets.

See also FLOGI.

Point-to-point
A Fibre Channel topology that employs direct links between each pair of communicating entities.

See also topology.

Port Cage
The metal casing extending out of the optical port on the switch, and in which the SFP can be inserted.

Port Card
A Fibre Channel card that contains optical or copper port interfaces, and acts like a switch module.

See also 16-port card.

Port Module
A collection of ports in a switch.

Port_Name
The unique identifier assigned to a Fibre Channel port. Communicated during login and port discovery.

POST
Power On Self-Test. A series of tests run by a switch after it is turned on.

Primary FCS Switch
Primary fabric configuration server switch. The switch that actively manages the configuration and security parameters for all switches in the fabric.

See also backup FCS switch, FCS switch.

Private Device
A device that supports arbitrated loop protocol and can interpret 8-bit addresses, but cannot log into the fabric.

Private Loop
An arbitrated loop that does not include a participating FL_Port.

Private NL_Port
An NL_Port that communicates only with other private NL_Ports in the same loop and does not log into the fabric.

Protocol
A defined method and a set of standards for communication.

PSU
Power Supply Unit.

Public Device
A device that supports arbitrated loop protocol, can interpret 8-bit addresses, and can log into the fabric.

Public Loop
An arbitrated loop that includes a participating FL_Port, and may contain both public and private NL_Ports.

Public NL_Port
An NL_Port that logs into the fabric, can function within either a public or a private loop, and can communicate with either private or public NL_Ports.

Quad
A group of four adjacent ports that share a common pool of frame buffers.

QuickLoop
An HP StorageWorks product that makes it possible to allow private devices within loops to communicate with public and private devices across the fabric through the creation of a larger loop.

May also refer to the arbitrated loop created using this software. A QuickLoop can contain a number of devices or looplets; all devices in the same QuickLoop share a single AL_PA space.

A means of allowing private hosts to communicate with private targets across a switched fabric.

The QuickLoop/Fabric Assist feature also allows:

- Private hosts to communicate with public targets across a switched fabric
- Private hosts to communicate with private targets that are not resident on the same switch across a switched fabric

See also Fabric Access, fabric assist, and translative mode.

QuickLoop Zoning
Protects devices from disruption by unrelated devices during critical processes; for example, during a tape backup session.

R_A_TOV
Resource Allocation Time-out Value. The maximum time a frame can be delayed in the fabric and still be delivered.

See also E_D_TOV, RR_TOV.

R_RDY
Receiver ready. A primitive signal indicating that the port is ready to receive a frame.

RAID
Redundant Array of Independent Disks. A collection of disk drives that appear as a single volume to the server and are fault tolerant through mirroring or parity checking.

See also JBOD.

Remote Fabric
A fabric that spans across WANs by using protocol translation (a process also known as tunneling) such as Fibre Channel over ATM or Fibre Channel over IP.

Remote Switch
Bridges two switches into a SAN as large as 3000KM or more through protocol encapsulation in ATM networks via the Computer Network Technologies (CNT) UltraNet Open Systems Gateway.

Request Rate
The rate at which requests arrive at a servicing entity.

See also service rate.

RLS Probing
Read link status of the AL_PAs.

Root Account
A login used for debugging purposes by HP engineers and is not intended for customer use.

See also account level switches.

Route
As applies to a fabric, the communication path between two switches. May also apply to the specific path taken by an individual frame, from source to destination.

See also FSPF.

Routing
The assignment of frames to specific switch ports, according to frame destination.

RR_TOV
Resource Recovery Time-out Value. The minimum time a target device in a loop waits after a LIP before logging out a SCSI initiator.

See also E_D_TOV, R_A_TOV.

RS-232 port
A port that conforms to a set of Electrical Industries Association (EIA) standards. Used to connect DTE and DCE devices for communication between computers, terminals, and modems.

See also DCE port, DTE port.

RSCN
Registered State Change Notification. A switch function that allows notification of fabric changes to be sent from the switch to specified nodes.

RX_ID
Responder Exchange Identifier. A 2-byte field in the frame header used by the responder of the Exchange to identify frames as being part of a particular exchange.

SAN
Storage Area Network. A network of systems and storage devices that communicate using Fibre Channel protocols.

See also fabric.

SAN Switch
A switch whose main task is to connect nodes into the fabric.

See also core switch.

SCSI
Small Computer Systems Interface. A parallel bus architecture and protocol for transmitting large data blocks to a distance of 15 - 25 meters.

SDRAM
Synchronous Dynamic Random Access Memory. The main memory for the switch. Used for volatile storage during switch operation.

See also flash.

Sequence
A group of related frames transmitted in the same direction between two N_Ports.

Service Rate
The rate at which an entity can service requests.

See also request rate.

SFF
Small Form Factor.

SFP Cable

The latest innovation in high-speed copper cabling for Fibre Channel and InfiniBand. It incorporates the SFP module directly onto the cable assembly, eliminating the need for a separate SFP copper module and an HSSDC2 cable assembly.

SFP
Small form factor pluggable. A transceiver used on 2 Gbps switches that replaces the GBIC. Refers to the LC-form factor transceiver.

See also GBIC.

SID/DID
Source identifier/Destination identifier. S_ID is a 3-byte field in the frame header that is used to indicate the address identifier of the N_Port from which the frame was sent.

Single Mode
The fiber optic cabling standard that, when used in conjunction with a 1300 nm laser light, can transfer data up to 10 km between devices. When used in conjunction with a 1550 nm laser light, single mode cabling can transfer data over 10 km.

See also multimode, LWL, ELWL, and XLWL.

SI
Sequence Initiative.

SNMP
Simple Network Management Protocol. An internet management protocol that uses either IP for network-level functions and UDP for transport-level functions, or TCP/IP for both. Can be made available over other protocols, such as UDP/IP, because it does not rely on the underlying communication protocols.

See also Community (SNMP).

SNMPv1
The original SNMP, now labeled v1.

SNS
Simple Name Server. A switch service that stores names, addresses, and attributes for up to 15 minutes, and provides them as required to other devices in the fabric. SNS is defined by Fibre Channel standards and exists at a well-known address. May also be referred to as directory service.

See also FS.

StorageWorks SAN switch
The brand name for the HP family of switches.

Switch Name
The arbitrary name assigned to a switch.

Switch Port
A port on a switch. Switch ports can be E_Ports, F_Ports, or FL_Ports.

Switch
Hardware that routes frames according to Fibre Channel protocol and is controlled by software.

SWL
Short Wavelength. A type of fiber optic cabling that is based on 850-mm lasers and supports 1.0625-Gbps link speeds. May also refer to the type of GBIC or SFP.

See also LWL.

Tachyon
A chip developed by Hewlett-Packard, and used in various devices. This chip has FC-0 through FC-2 on one chip.

Target
A storage device on a Fibre Channel network.

See also Initiator.

Tenancy
The time from when a port wins arbitration in a loop until the same port returns to the monitoring state. Also referred to as loop tenancy.

Terminal Serial Port
May also be referred to as the console port. The lower serial port on the CP Card of the StorageWorks Core switch. This port sends switch information messages and can receive commands. Can be used to connect the CP Card to a computer terminal. Has an RS-232 connector wired as a DTE device, and can be connected by serial cable to a DCE device. The connector pins two and three are swapped so that a straight-through cable can be used to connect to a terminal. The device name is ttyS0.

See also DCE port, modem serial port.

Throughput
The rate of data flow achieved within a cable, link, or system. Usually measured in bps (bits per second).

See also bandwidth.

Topology
As applies to Fibre Channel, the configuration of the Fibre Channel network and the resulting communication paths allowed. There are three possible topologies:

- Point to point: A direct link between two communication ports.
- Switched fabric: Multiple N_Ports linked to a switch by F_Ports.
- Arbitrated loop: Multiple NL_Ports connected in a loop.

Transceiver
Device that converts one form of signaling to another for transmission and reception; in fiber optics, it refers to optical and electrical.

Transfer State
The state in which a port can establish circuits with multiple ports without reentering the arbitration cycle for each circuit. This state can only be accessed by an L_Port in the Open state.

Translative Mode
A mode in which private devices can communicate with public devices across the fabric.

Transmission Character
A 10-bit character encoded according to the rules of the 8B/10B algorithm.

Transmission Word
A group of four transmission characters.

See also data word.

Trap (SNMP)
The message sent by an SNMP agent to inform the SNMP management station of a critical error.

See also SNMP.

Trunking
See ISL Trunking.

Tunneling
A technique for enabling two networks to communicate when the source and destination hosts are both on the same type of network, but are connected by a different type of network.

U_Port
Universal Port. A switch port that can operate as a G_Port, E_Port, F_Port, or FL_Port. A port is defined as a U_Port when it is not connected or has not yet assumed a specific function in the fabric.

UDP
User Datagram Protocol. A protocol that runs on top of IP and provides port multiplexing for upper-level protocols.

ULP_TOV
Upper-level Time-out Value. The minimum time that a SCSI ULP process waits for SCSI status before initiating ULP recovery.

ULP
Upper-level Protocol. The protocol that runs on top of Fibre Channel. Typical upper-level protocols are SCSI, IP, HIPPI, and IPI.

Unicast
The transmission of data from a single source to a single destination.

See also broadcast, multicast.

user account
A login intended for use by the customer to monitor, but not control, switch operation.

See also account level switches.

VC
Virtual circuit. A one-way path between N_Ports that allows fractional bandwidth.

Web Tools
An HP product that runs on Fabric OS and provides a graphical interface to allow monitoring and management of individual switches or entire fabrics from a standard workstation running a browser.

Well-known Address
As pertaining to Fibre Channel, a logical address defined by the Fibre Channel standards as assigned to a specific function, and stored on the switch.

Workstation
A computer used to access and manage the fabric. May also be referred to as a management station or host.

WWN
World-Wide Name. An identifier that is unique worldwide. Each entity in a fabric has a separate WWN.

XLWL
Xtra Long Wave Length. Laser light with a periodic length greater than 1300 nm (e.g., 1420 or 1550). XLWL lasers are used to transmit Fibre Channel data over distances greater than 10 Km.

Also known as ELWL.

Xmitted Close State
The state in which an L_Port cannot send messages, but can retransmit messages within the loop. A port in the XMITTED CLOSE state cannot attempt to arbitrate.

Zone
A set of devices and hosts attached to the same fabric and configured as being in the same zone. Devices and hosts within the same zone have access permission to others in the zone, but are not visible to any outside the zone.

See also Zoning.

Zone Alias
A name assigned to a device or group of devices in a zone. Aliases can greatly simplify the zone administrative process.

See also alias.

Zone Configuration
A specified set of zones. Enabling a configuration enables all zones in that configuration.

See also defined zone configuration, enabled zone configuration.

Zone Member
A port, node, WWN, or alias, which is part of a zone.

Zone Schemes
The level of zoning granularity selected. For example, zoning may be done by switch/port, WWN, AL_PA, or a mixture.

See also zone configuration.

Zone Set
See zone configuration.

Zoning
An HP product that runs on Fabric OS and allows partitioning of the fabric into logical groupings of devices. Devices in a zone can only access and be accessed by devices in the same zone.

See also zone.

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